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ABSTRACT

The report analyzes the effect undergraduate enhancement funding in Florida has had on the student undergraduate experience. The study involved an analysis of data obtained from the Board of Regents Instructional Activity data files, analysis of the findings of previous studies and task force reports, the results of a survey distributed to 1,031 students at 8 institutions, and telephone interviews with 16 state university student advisors. Florida's initiatives to strengthen undergraduate education have involved reducing class size and improving the quality of advising services. Class size levels within the general education curriculum are still significantly above the 22:1 student-faculty ratio identified in the State University System Master Plan. Students surveyed rated their smaller classes more highly in overall quality, quality of instruction, chance to develop a personal relationship with the instructor, ability to concentrate on the subject matter, and other factors. Freshmen were generally satisfied with the advising services they had received, but as students progressed in their academic program, level of satisfaction declined. The majority of students were unaware of some advising services available to them. Several recommendations conclude the report. A copy of the student survey instrument and a bibliography of 28 items are included. (JDD)

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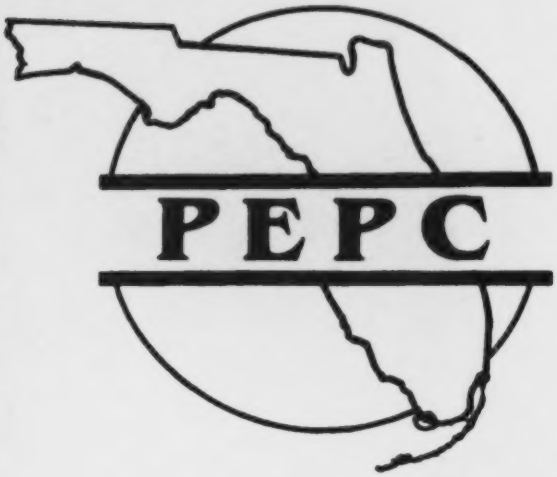

THE IMPACT OF UNDERGRADUATE ENHANCEMENT FUNDING

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Report and Recommendations of the Postsecondary Education Planning Commission

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1990 - Report 7

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The Postsecondary Education Planning Commission, initially created by executive order in 1980 and subsequently given statutory authority, serves as an advisory body to the State Board of Education on all postsecondary education matters. The Commission is composed of 11 members of the general public and one full-time student registered at a postsecondary education institution in Florida. Members are appointed by the Governor with the approval of three members of the State Board of Education and subject to confirmation by the Senate.

The major responsibility of the Commission is preparing and updating every five years a master plan for postsecondary education. The enabling legislation directed that the Plan "shall include consideration of the promotion of quality, fundamental educational goals, programmatic access, needs for remedial education, regional and state economic development, demographic patterns, student demand for programs, needs of particular subgroups of the population, implementation of innovative educational techniques and technology, and the requirements of the labor market. The capacity of existing programs, in both public and independent institutions, to respond to identified needs shall be evaluated and a plan shall be developed to respond efficiently to unmet needs."

Other responsibilities include recommending to the State Board of Education program contracts with independent institutions; advising the State Board regarding the need for and location of new programs, branch campuses and centers of public postsecondary education institutions; reviewing public postsecondary education budget requests for compliance with the State Master Plan; recommending to the Commissioner of Education proposals for support through the Postsecondary Cooperation Trust Fund; and periodically evaluating the State's 28 regional coordinating councils for vocational education, adult general education and community instructional services.

Further information about the Commission, its publications, meetings and other activities may be obtained from the Commission office, 210 Collins Building, Department of Education, Tallahassee, Florida, 32399-0400; telephone (904) 488-7894.

POSTSECONDARY EDUCATION PLANNING COMMISSION

THE IMPACT OF UNDERGRADUATE ENHANCEMENT FUNDING

Prepared in Response to Specific Appropriation 587
of the
1989 General Appropriations Act
Chapter 89-253, Laws of Florida

1990 - Report 7

April 19, 1990

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Executive Summary

In proviso language accompanying Specific Appropriation 587 of the General Appropriations Act, the Postsecondary Education Planning Commission was directed to "prepare a report evaluating the effect undergraduate enhancement funding has had on the student undergraduate experience. The report shall identify undergraduate core curriculum courses which exceed the 1 to 22 student/instructor ratio recommended in the 1988 State University System Master Plan and shall compare the student attrition rates and grades of students enrolled in classes with ratios of no more than 1 to 30, to attrition rates and grades of students receiving instruction in comparable subjects in large lecture hall instructional settings. The report shall also include an analysis of the different options available for providing academic and career advising and shall specifically evaluate and make recommendations concerning the advantages and disadvantages associated with the use of professional versus faculty advisors. The report shall specifically address whether large or small instructional settings are more conducive to student learning in college preparatory, honors, or other specialized programs or in specific academic disciplines or courses."

The Chairman assigned the responsibility for this study to the Planning Committee under the chairmanship of Allan Fickett and included Commissioners Ralph Hogges, Robert Mautz, and Carolyn Wilson. The Committee held six public hearings between September 1989 and April 1990 to discuss information and documents collected, receive public testimony and review draft materials. This study required the extensive involvement of the Board of Regents, and information not available from the board was requested from individual state universities. The Dean for Undergraduate Studies at Florida State University assisted in the organization and implementation of the pilot study of the relationship between student acheivement in small and large classes. The major activity of this study involved an analysis of data obtained from the Board of Regents Instructional Activity data files. This analysis determined which courses in the core curriculum identified by each institution were above the 22 to 1 student faculty target ratio and provided some indication of the range of average class size levels within the group of courses which can be used to meet the general education requirements in Florida's state universities. In addition, the study includes an analysis of the findings of previous studies and task force reports into the relationship between class size and student acheivement, the results of a student survey containing items regarding class size, academic and career advising services (including the SASS) and a summary of a series of telephone interviews conducted with individuals at each state university involved in providing advising services to students.

In the last few years, the state of undergraduate education has become the focus of a national policy debate. The State of Florida has undertaken a number of initiatives to strengthen undergraduate education. For the past six years, the State University System has received a total of $34.25 million for undergraduate enhancement. From 1982 through 1989, a minimum of $3.5 million and a maximum of approximately $10.8 million annually has been appropriated primarily for the enhancement of faculty salaries, improving undergraduate instruction, improving academic advising, and enhancing student services. A significant amount of the funds have been used to reduce the size of classes

toward a target student/faculty ratio of 22:1 as identified in the State University System **Master Plan**. In addition to reducing class size in an effort to improve the quality of undergraduate education, approximately $3.5 million of the six-year enhancement funds were used by the Board of Regents to improve the quality of academic advising in the state universities.

A review of research conducted into the relationship between class size and student achievement revealed no significant difference in the achievement levels of students in small classes (approximately 30 students) and those in larger classes of 100 students or more. In contrast, research studies involving student ratings of their classes have shown that students rate smaller classes more highly. The students participating in the Commission's surveys heavily favored small classes in their responses to the survey items. Survey particpants indicated that the overall quality of classes, the quality of instruction, the chance to develop a personal relationship with the instructor, the chance to make a contribution or ask a question in class, the ability to see or hear the instructor, the ability to concentrate on the subject matter and their personal satisfaction with the class were either much greater or greater in small classes.

Academic advising is primarily a decentralized process spread throughout universities with little coordination or training provided to advisors. Of those students responding to the Commission's survey, freshmen were generally satisfied with the advising services they had received. However, further analysis revealed that as students progress in their academic program the level of satisfaction with advising services declines. Interviews conducted with campus representatives revealed a consensus for the use of professional advisors with lower division and high risk students. Professional advisors are viewed a possessing special counseling skills useful in working with these students. In addition, they are more knowledgeable concerning the specific information concerning such items as the College Level Academic Skills Test, courses which can be used to satisfy the requirements imposed by the Gordon Rule and other academic policies necessary for effectively advising students.

The development of the Student Academic Support System (SASS) represents a significant development in the State University System's efforts to improve the quality of advising services provided to students. Survey responses revealed that only twelve percent of the students in the survey indicated that they were aware of the Student Academic Support System. Further, of those who indicated that they were familiar with the SASS, only 46 percent or 18 students had actually used the system. Interviews with campus representatives indicated that the SASS is encountering difficulty in implementation at the institutional level. Chief among the problems cited are a lack of central coordination and support necessary for the collection and verification of the curricular information which forms the basis for the system.

Students responding to questions concerning their experiences with career advising services on campus indicated a surprising lack of knowledge. When asked if they had received career advising services at their institution, eighty-nine percent of the students responding indicated that they had not received such counseling at their institution. Further analysis indicates that as students approach the end of their academic program they are more likely to seek out some form of career counseling. Student comments indicated

that they would like more information about the career advising services available to them as well as a more complete approach to advising which combines academic and career advising.

The Commission found that because of a lack of appropriate and consistent data it is not possible to verify that the expended undergraduate enhancement funds have been used in a manner consistent with the intent of the Legislature. Some of the funds may have been used to support graduate education or converted for other purposes. Further, baseline information on average class size levels as well as accurate information concerning student retention rates in different class sections could not be obtained. Yet, although no comparable data on class size levels exists for prior years, information on class size levels obtained from the Board of Regents for the period summer 1988 through the spring 1989, indicates that class size levels within the general education curriculum are significantly above that implied by the 22 to 1 student faculty ratio identified in the State University System Master Plan. Both the state's economic constraints and national projected shortages of faculty will adversely impact the ability of the State University System to reduce class size. In addition, continued projected growth in student enrollments will present the state universities with the incompatible task of trying to keep class enrollments at their current levels while continuing to provide access to increasing numbers of students.

The Commission endorsed the following specific recommendations based upon the findings of the impact of undergraduate enhancement funding study.

Recommendation:

1. **Institutional efforts to reduce class sizes should be maintained in: a) disciplines such as English composition, foreign language and science laboratory sessions, in which direct faculty interaction and individual instruction are even more essential to the learning process, and b) classes in which teaching effectiveness is adversely affected because of extremely large enrollments.** The Board of Regents should work with the Legislature to establish realistic funding and performance goals for these efforts.

2. **Each university should review academic and career advising systems that may be in place; if none exist, the institution should develop a policy statement regarding the goals for academic and career advising and the methods for achieving those goals.** Student participation rates, campus surveys, and comparisons with the services offered at similar institutions should prove useful in such efforts. To demonstrate their commitment to high quality advising for undergraduates, each university should review the needs of their academic and career advising programs and should place a high priority on support for addressing those needs.

3. **Each university should attempt to strengthen the linkages among academic and career advising systems and personnel so that a more cooperative, integrated process for advising students will**

be created. This process will require that the top university administrators who supervise these programs address the issue of integrating the services (not necessarily the programs themselves) that the academic and career programs offer. In turn, the program directors and their staffs should develop and implement joint academic and career counseling ventures.

4. **The use of professional advisors in the advising of lower division students and those in high risk categories such as undecided majors, those who have been blocked from entering a degree program by limited access requirements, alternative admits, students on academic probation, at risk minority students and athletes should be expanded and further evaluated.** Undecided students, in most instances, and those in high risk categories should be encouraged to complete a written career/academic plan. The plan should specify the steps necessary for the student to achieve educational and career goals.

5. **The Board of Regents should reinforce its commitment to the coordination, implementation and operation of the Student Academic Support System (SASS) and the delivery of academic and career advising services.** The goals and procedures to be used for implementing SASS with students should be clearly articulated at each institution. Universities, especially those where SASS operations are decentralized, should strengthen the control and coordination of the system so that the information found in SASS degree audits continues to be accurate. In addition to technical issues regarding the implementation of SASS at the campus level, increased attention should be devoted to its integration with existing procedures for advising students.

6. **As a part of the competitive grant process, specific, measurable outcomes should be identified for all proposed undergraduate enhancement programs and initiatives.** Outcome measures such as the number of students served and gains in student performance or persistence are possible examples which might be used. The process of using competitive grants for awarding undergraduate enhancement funds to state universities should be continued.

I. INTRODUCTION

In proviso language accompanying Specific Appropriation 587 of the 1989 General Appropriations Act, the Florida Legislature directed the Postsecondary Education Planning Commission to "prepare a report evaluating the effect undergraduate enhancement funding has had on the student undergraduate experience. The report shall identify undergraduate core courses which exceed the 1 to 22 student/instructor ratio recommended in the 1988 State University System Master Plan and shall compare the student attrition rates and grades of students enrolled in classes with ratios of no more than 1 to 30, to attrition rates and grades of students receiving instruction in comparable subjects in large lecture hall instructional settings. The report shall also include an analysis of the different options available for providing academic and career advising and shall specifically evaluate and make recommendations concerning the advantages and disadvantages associated with the use of professional versus faculty advisors. The report shall specifically address whether large or small instructional settings are more conducive to student learning in college preparatory, honors, or other specialized programs or in specific academic disciplines or courses."

In the last decade, undergraduate education has become the focus of a national policy debate. Several blue-ribbon commissions have issued policy reports which promoted renewed emphasis on the undergraduate experience. One such report, **Integrity in the College Curriculum** was published in 1985 by the Association of American Colleges. The report cited, as evidence of the decline in undergraduate education, complaints from the business community of difficulty in recruiting literate college graduates, the proliferation of remedial English courses in colleges and the corporate world, the wide neglect of writing as a part of the undergraduate experience, grade inflation during a period of declining scores on Scholastic Aptitude and American College Tests, and increased pressures on faculty to ease students' entry into graduate school.

In the 1987 report, **College: The Undergraduate Experience in America**, the Carnegie Commission addressed the importance of class size to undergraduate education. As might be expected, class size was found to vary considerably by institution. The Carnegie report found that 29 percent of the students at research universities stated that most or all of their classes have more than 100 students enrolled; whereas, at liberal arts colleges only one percent of the students reported classes of this size. While only five percent of the students at research universities said they had no classes larger than 100 students, 80 percent of the students at the liberal arts colleges had no classes larger than 100 students. This study also found that for most undergraduates, the freshman and sophomore classes (often general education sections) were the ones most likely to be overloaded. The Carnegie Commission concluded that one way to measure an institution's commitment to undergraduate education is to look at class size in general education, and stated, "a college or university that does not give top priority to the basic undergraduate courses is not fully committed to excellence in education."

The influence of class size on teaching effectiveness has been a concern for many years. As class size grew to meet the demand of increasing enrollments in the fifties and sixties, a renewed interest in the potential effect large

classes might have on student performance and teaching effectiveness emerged as an issue. The relationship of class size and achievement remains a major issue because of conflicting research findings and because of deeply held beliefs on the part of educators concerning its perceived impact on learning.

The State of Florida has undertaken a number of initiatives in the last ten years to strengthen undergraduate education. In addition, the State Board of Education adopted a rule requiring each public higher education institution in Florida to implement a general education core curriculum. The rule directs each institution to identify a minimum of 36 semester hours of general education college credit in the liberal arts and sciences to be completed by students working toward a baccalaureate degree. Beyond requiring all colleges and universities to develop a core curriculum, however, there have been no specific actions regarding the content of the curriculum, breadth of general education requirements, or the integration of these requirements into the total undergraduate experience.

Commission Activities

Previous studies, informational materials and task force reports relating to the quality of undergraduate education, class size levels and academic and career advising provided a substantial base for this study. The Commission conducted additional research activities, including:

1. A survey of students at eight postsecondary institutions (three state universities and five community colleges) to determine student attitudes for and student perceptions of class size, the Student Academic Support System (SASS) and academic and career advising services;

2. Telephone interviews with campus representatives involved in the delivery of academic and career advising services to students;

3. An analysis of class size levels within the general education curriculum offered at the nine state universities; and

4. A survey and grade analysis of students in one small and one large section of the same course offered at one state university.

This study necessitated the direct involvement of the State University System Board of Regents. Information which was not available from the state board was requested from individual institutions.

II. UNDERGRADUATE ENHANCEMENT FUNDING

To further strengthen undergraduate education, during the past six years, the State University System has received a total of $34.25 million for undergraduate enhancement. From 1982 through 1989, a minimum of $3.5 million and a maximum of approximately $10.8 million has been appropriated annually primarily for enhancing faculty salaries, improving undergraduate instruction, improving academic advising, and enhancing student services. A significant amount of the funds has been used to reduce the size of classes toward a target student/faculty ratio of 22 to 1 as identified in the State University System **Master Plan**.

During the first three years of the appropriations (1982-85), the primary focus of the legislative funds for the enhancement of undergraduate education was on reducing class size in mathematics, English, and foreign languages. In subsequent years, undergraduate enhancement funds were allocated to further improve undergraduate education in ways consistent with the recommendations contained in the 1987 Board of Regents' report, **Enhancing Undergraduate Education in the State University System**. In a subsequent State University System report prepared for the 1988 Legislature, all universities reported reductions in class size in mathematics; however, some of the reduction was attributable to a decline in mathematics enrollment at six universities. The State University System average class size dropped from 41.7 students per section in 1983-84 to 29.5 in 1987-88. Class sizes in English were greatly affected by increases in enrollment over the period of the appropriations. The University of Florida, the University of South Florida, and the University of Central Florida, which had average class sizes in excess of 22:1 in English in 1983-84, offered more sections and reduced their ratios. Class size increased slightly at Florida A & M University. In contrast, Florida State University, despite offering 87 additional sections of English, experienced an increase in class size due to a 32 percent increase in enrollment. Similarly, the remaining five universities that began with class sizes in English below 22:1 also experienced increases in class sizes because of enrollment increases.

In 1983-84, the class size in foreign language at all universities was at or below the 22:1 target ratio. Over the six years of the appropriations, increases in class size in foreign languages have been reported for the University of Central Florida, the University of South Florida and the University of West Florida. The other six institutions were able to either further reduce or maintain their class size ratios at the 1983-84 levels.

One point of clarification is necessary concerning the computation of average class size and student/faculty ratios for the universities and the system as a whole. A number of the institutions in their reports to the Legislature refer to the 22 to 1 student/faculty ratio implying an average class size of 27.5 as the actual target number. The numerical computation of this average is described in the 1987 **State University System Report on the Improvement of Undergraduate Education in English, Mathematics and Foreign Language Courses**. In evaluating the progress of the System in reducing class size toward the goal of one teacher to 22 students, the report describes the computation of average class size as follows:

> With 40 credits per undergraduate student per year (annualized), a 22:1 ratio equates to 880 annual credit hours. On a three-hour course model, a Fall term load of twelve credit hours per position equates to an average class size of 27.5 to 1. (p. 6)

In other words, a full-time equivalent of 40 semester hours for each of 22 students to each faculty member equals 880 semester hours of instruction. Dividing 880 semester hours of instruction by 3/8 (the weight of one Fall or Spring semester) leaves 330 credit hours of instruction per regular semester. If this number is then divided by the number of credit hours each full-time faculty member is expected to teach (12 credit hours), the result is 27.5 students per course. Consequently, the State University System report as well as several of the institutions have used this benchmark in evaluating their progress toward achieving the target 22 to 1 student/faculty ratio cited in the **State University System Master Plan.**

In an effort to improve the quality of undergraduate education in addition to reducing class size, both the Legislature and the Board of Regents have recognized that better academic advising is essential to this effort. Approximately $3.5 million of the six-year enhancement funds has been used to improve the quality of academic advising in the state universities.

Class Size

In theory, smaller classes allow students to benefit from more faculty attention, opportunities for participation in class discussion, individual instruction, and in general more opportunities to achieve higher levels of learning. With large classes, there may be fewer similar opportunities. Although it seems logical that smaller class sizes would influence the teaching/learning process in positive ways, the results of studies of the relationship between class size and student achievement are mixed. Most research in this area involves secondary education settings rather than colleges or universities.

In a major study of class size and achievement, Glass and his colleagues at the Far West Laboratory for Educational Research and Development conducted an analysis of existing class size research to determine if any difference in the achievement levels of students in large and small classes could be found. The statistical technique employed combined the results of many empirical studies to arrive at a common finding. In this instance, 77 studies involving the effects of class size on achievement were combined representing data on nearly 900,000 students. Although Glass and his colleagues concluded that a strong relationship existed between smaller class size and increased levels of achievement, the technical procedures employed in the analysis of this study have been criticized by other researchers. Specifically, critics have charged that the role of such key variables as student ability, instructional format and curricular content was largely ignored in the interpretation of the results. In addition, this 1978 research used very few studies of the effect of class size on college student achievement or with class sizes larger than 40. As a result, the findings are not easily applicable to postsecondary education where many of the general education classes are larger than 100.

Although limitations exist in the Glass study, other researchers have found some relationship between class size and student achievement at the college level. In research done at the University of Wisconsin from 1919 to 1943 on hundreds of French classes, students in smaller classes were found to score higher on objective tests than those in larger classes. Similarly, studies of psychology students in 1924 indicated that students in classes of 20 performed better than students in classes of 40. Although several studies have indicated that students in smaller classes perform better, these results may be attributed to differences in the subjects studied and in the ability levels of the students in either the small or large classes. Research conducted at the University of Wichita in 1959 concluded that the institution's intermediate algebra classes should be taught in small discussion groups. Statistically significant differences were found to exist in the achievement levels of students both before and after controlling for different levels of entering ability in mathematics.

In contrast, class size research also contains studies which indicate superior performance for students in large classes. The Committee of Research at the University of Minnesota conducted fifty-nine experiments on the achievement levels of students in large and small classes in disciplines such as psychology, physics, accounting, law and education. Of those experiments, 46 were found to favor large classes. While only eight of the differences were statistically significant, six of the eight showed the large class as being favorably linked to better performance by students.

The controversial nature of the research on class size and achievement has been further complicated by a third group of studies which have found no significant difference in the achievement levels of students in small and large classes. A number of research efforts in the late 1960's and early 1970's have concluded that class size has little or no impact on student cognitive growth. In a research study conducted at Brigham Young University in 1985, a total of 16,230 test scores were analyzed utilizing the data from 305 sections of 24 different courses with sizes ranging from 13 to 1006 students. Based on the results of this study the authors have concluded that, at the college level, class size has little if any impact on student achievement. Although this study is one of the most comprehensive studies of the impact of class size on student achievement, many of the limitations common to research in this area continue to exist.

A majority of the studies conducted with students of college age found no difference in the achievement levels of students in small versus large classes. In studies which have found differences in performance favoring either small or large classes, the differences may be attributable to the needs of a select subject area such as mathematics or foreign language. Other significant factors include differences in the entering ability levels of students in the groups, different levels of teaching or learning, and different conditions for teaching such as the use of smaller lab or discussion sections taught by teaching assistants. For example, employing special teaching methods such as the use of small discussion sections as part of a large lecture class may account for the appearance of achievement levels in the larger sections that are equal or superior to that of the smaller classes. The Clearinghouse on Educational Management summed up the available research on class size and achievement in the following manner:

> The main studies over the last 75 years show little relationship between class size and achievement. Some studies favor small classes, some large, and others find no difference. The general inconsistency, however, need not disprove some relationship, since the research collectively has been too poor to be of much help. (p. 121)

The research available includes data from a variety of disciplines and educational settings, and the class sizes range from very small to very large. Unfortunately, control of all of the important variables in such research may not be feasible or possible given the constraints present in the university environment.

Another method useful in examining the relationship between class size and student achievement involves the comparison of standardized test scores over time. Although this research has been largely conducted within secondary education, it provides interesting insight into this complex and controversial relationship. In a 1988 report produced by the U.S. Department of Education titled, **Class Size and Public Policy: Politics and Panaceas**, the association between SAT and ACT test scores and statewide average class size levels was examined over a 25 year period. With few exceptions, standardized test scores declined during the two decades prior to 1980 in almost all areas of aptitude and achievement, in all grades, among many different subjects and in every region (Koretz, 1986). Yet, as test scores declined from the mid 1960s through 1980, class size was also declining. Thus the average class size was larger when test scores were highest and lower as scores declined.

While the benefits of smaller class size on student achievement have been touted by educators and parents for many years, convincing evidence to support these beliefs have been difficult to provide. As a result, the U.S. Department of Education report concludes:

> Evidence to date, from research and practice, does not generally support a policy of limiting class size in order to raise student achievement or to improve the quality of worklife for teachers; nor does it justify small reductions in pupil/teacher ratios or class size in order to enhance student achievement....Given the high costs and uncertain benefits, there are other strategies that deserve consideration before steps are taken to reduce class size. (p. 37)

While the results of studies concerning the effect of class size on student achievement have been mixed, the research has shown a relationship between smaller classes and noncognitive variables such as student self-esteem and attitudes toward learning and instruction. Approximately two-thirds of the research into the relationship between class size and student ratings of instructors and courses have shown that the larger the class the lower the class rating by students. Similarly, research into student attitudes toward large classes at the University of Nebraska at Lincoln suggests that overall, students in large sections experience a lack of instructor-student interaction as well as problems with their motivation, attention and initiative in class. In spite of modern audio-visual technology some students reported problems

with seeing and hearing the instructor. Large classes are often perceived by students as uncomfortable learning environments in which they experience difficulty in achieving their personal and academic goals.

Much of the research concerning student retention and attrition focuses upon the student who withdraws completely from the institution. Tracking students who choose to withdraw or drop only part of their course load during a semester is much more difficult to accomplish because of the variety of policies governing such activity in postsecondary education. In Florida's nine state universities, a variety of drop or withdrawal policies exist. Most institutions possess some form of drop or withdrawal policy which allows the student to leave a course before a specified date without an academic penalty. In some cases however, student records may not contain any indication that a class was dropped before the end of the semester. Still other institutions assign a failing grade to withdrawing students. As a result, the lack of a uniform method for dealing with student withdrawals makes study of these students difficult.

In general, students tend to remain in educational environments where they feel comfortable and satisfied. Meeting personal and academic goals in those environments further strengthens commitment to the task at hand. Achieving the dual goals of retaining and teaching students necessitates a look at teaching strategies that work toward the achievement of both goals at once (Rouche & Rouche, 1986). Research has shown that a student's intent to return to campus for additional semesters can best be influenced by the student's satisfaction with the quality of education at the university (academic satisfaction) and that academic satisfaction is closely tied to successful academic performance. Activities which promote contact between faculty and students such as smaller class size, academic advising, intellectual discussions, or career planning have a positive effect on a student's feeling of academic satisfaction, thus enhancing student achievement and persistence. As a result, class size, academic advising and student retention can be viewed as intertwined variables which together have a significant impact on Florida's efforts to improve undergraduate education.

Undergraduate Instruction and Workload

The size of classes in a postsecondary setting is dependent on a number of factors. One such factor which has contributed to the large enrollments in some undergraduate courses involves the lack of qualified teaching assistants. Teaching assistants comprise a substantial proportion of the workforce in undergraduate instruction. Several recent studies have estimated that as much as 25 percent of instruction at the undergraduate level is conducted by graduate teaching assistants. The availability of qualified teaching assistants and full-time faculty in mathematics and some of the natural sciences such as physics and chemistry is limited. In effect, large classes often result from the shortage of instructors in some areas and the increasing demand for those classes as enrollment grows.

Another similar factor concerns the percentage of the average faculty members annual assignment which is devoted to classroom instruction. As Table 1 illustrates, the Carnegie Commission has determined that only eight percent of

faculty at research universities and 19 percent at doctorate granting universities spend 11 or more hours each week in undergraduate instruction. Further, at the research universities, 26 percent of the faculty spend no time teaching undergraduates. The picture is somewhat better at liberal arts and comprehensive colleges where 38 percent and 36 percent of faculty respectively spend at least 11 hours each week teaching undergraduates.

Table 2 illustrates the student to faculty ratio of the State University System since 1983-84. The faculty FTE positions represented in the table are those related to enrollment. Any faculty positions with no teaching responsibilities such as librarians or computer programmers were not included in the computation. In addition, teaching assistants and adjunct faculty which have been used to supplant undergraduate instruction are also not included in this table. A review of the figures indicates that based upon this limited data, the State University System has kept pace with growing enrollments, however little overall gain is apparent.

TABLE 1

AVERAGE NUMBER OF HOURS PER WEEK FACULTY DEVOTE TO CLASSROOM INSTRUCTION IN UNDERGRADUATE COURSES (Percent Responding)

TYPE OF INSTITUTION	NONE	1-4	5-10	11-20	OVER 20
All Institutions	14	21	38	25	2
Research Universities	26	35	30	8	1
Doctorate-Granting Universities	14	24	41	19	2
Comprehensive universities & colleges	8	13	41	36	2
Liberal Arts Colleges	3	13	43	38	3

Source: The Carnegie Foundation for the Advancement of Teaching, National Survey of Faculty, 1984.

TABLE 2

STATE UNIVERSITY SYSTEM
STUDENT FTE/FACULTY FTE RATIOS

YEAR	FACULTY FTE POSITIONS*	STUDENT ANNUAL FTE	STUDENT FTE PER FACULTY FTE
1983-84	4,450.64	84,314 (1)	18.94
1984-85	4,660.59	85,843	18.42
1985-86	4,715.53	86,180	18.28
1986-87	4,822.74	87,183	18.08
1987-88	4,946.03	89,157	18.03
1988-89	5,159.44	93,769	18.17
1989-90	5,474.13	99,764 (2)	18.22

* From Faculty and Staff Positions Enrollment Related Faculty Man-Years

(1) Excludes Lower Level at UWF.
(2) As of 2/12/90.

Section 240.243, Florida Statutes, requires that "each full-time equivalent teaching faculty member at a university who is paid wholly from state funds shall teach a minimum of 12 classroom contact hours per week at such university." A contact hour is defined as a standard one hour classroom period. In actual practice, a teaching faculty member's annual assignment is usually made up of classroom instruction and any number of contact hour equivalencies. In the process of determining a faculty member's total effort (i.e., the activities which together make 100% of 1 FTE position) as well as his or her compliance with the 12 hour rule, a number of equivalent activities may be counted in addition to actual classroom instruction. Some of the credit generating equivalent activities which may substitute for classroom instruction include: (1) thesis and dissertation supervision; (2) directed individual studies; (3) supervision of student interns; and (4) supervised teaching/research. In addition, some of the noncredit generating equivalent activities include: (1) supervision of cooperative education; (2) clinical instruction; (3) other instructional effort (such as improvement of course materials, and participation in planning, development or evaluation of the total curricula); (4) research; (5) public service such as service in professional academic or student organizations; (6) academic advising; (7) academic administration such as serving as a department chairperson; and (8) university governance including service on university committees.

The 1988-91 Florida Board of Regents/United Faculties of Florida Collective Bargaining Agreement contains a section covering how a faculty member's assignment should be determined. Section 9.4(b) states:

> The Board and the UFF recognize that, while the Legislature has described the minimum full academic assignment in terms of 12 contact hours or equivalent research and service, the professional obligation undertaken by a faculty member may properly be broader than that minimum. In like manner, the professional obligation of other professional employees is not easily susceptible of quantification. The Board acting through its representatives, has the right, in making assignments, to determine the types of duties and responsibilities which comprise the professional obligation and to determine the mix or relative proportion of effort an employee may be required to expend on the various components of the obligation.

In effect, some examination of the percentage of faculty effort which is actually devoted to instruction versus that devoted to equivalents might be instructive. If the goal of the Legislature and the Board of Regents is to reduce class size in some areas and to offer more sections in required basic courses for increasing numbers of students, one option would lie in increasing the amount of faculty effort devoted to instruction in critical general education areas. However, assuming some reallocation of the designated effort of teaching faculty members is possible, some additional factors would have to be considered.

Faculty member's research efforts generate funds which support graduate students. In turn, these graduate students comprise a part of the faculty workforce which provides instruction at the undergraduate level. A reduction in faculty effort toward research in some areas might negate any net gain in the institutions ability to provide more instruction for undergraduates. Although the Board of Regents is currently developing a system to generate information concerning actual faculty member's activities, it will not be operational until the 1990-91 fiscal year. The lack of any accurate data on faculty effort devoted to undergraduate instruction in the SUS makes any conclusions about the viability of this option difficult at this time. In addition, if faculty assignments are reapportioned such that undergraduate instruction becomes a priority with less effort going to other equivalent activities such as service and research, the criteria for tenure and promotion would have to reflect any adjustments made.

Academic and Career Advising

Colleges and universities offer students academic and career advising to assist them in understanding their undergraduate experiences and to develop their educational plans. Attempts at providing students with clear, accurate and easily accessible advising have not always been successful. Almost every study on this subject completed since 1970 has revealed that college students are generally dissatisfied with the advising they received. Nationwide studies, including a 1987 Carnegie Commission study, have revealed that undergraduates rate the poor quality of academic advising as a major problem. The American College Testing Program (ACT) reported in 1988 that academic advising lacked coordination and direction on most campuses, and remains highly decentralized among various academic units. The delivery of academic and career advising is further complicated by the diversity of students in postsecondary institutions.

Academic Advising

Historically, academic advising was the process that helped students select and schedule courses prior to registration. The role of the advisor was to provide the student with information about the registration process and with explanations regarding academic rules and requirements for graduation. Rules and procedures governing advising and registration changed frequently, and advisors were expected to continually update their knowledge of the latest revisions in academic policy and procedure.

Today, academic advising is a more complex and multi-dimensional process because it reaches beyond providing students with information on course scheduling, graduation criteria, and other institutional requirements. Students also rely on academic advising to select an academic major when unable to enter the program of their choice due to limited access requirements. At many institutions, academic advising and planning have become central elements in retention efforts. A solid educational plan is viewed as vital in retaining students and in increasing the value of their college experience. In addition, transfer students rely on accurate and timely academic advising to meet the requirements for a degree at their new institution.

Academic advising also includes referring students to other campus professionals when advisors are not able to meet all of the students' needs.

Career Advising

As students seek information regarding academic choices, they often have questions regarding career decisions. Developing early career plans better enables the student to build logical academic plans. Students need information regarding academic programs and career options in order to make informed decisions.

Career advising includes a wide range of services that provide students with information about their interests, values, and career options. Some students use career advising to learn what career opportunities are available and to determine their options for majors that will help them advance toward a career. In addition, students may seek career advising for a variety of reasons. Career advising centers can provide assistance with job search strategies, including interviewing and resume writing, information concerning cooperative education opportunities, and career counseling to students blocked from access to their chosen academic major.

As with academic advising, high quality career advising requires that the advisor have a broad knowledge of careers and well-developed skills in the career counseling process. Adequate tools, resources, and information are an important part of the career advising system.

Providers of Advising

Academic and career advising in colleges and universities is provided both formally and informally. Faculty advisors, professional advisors and peer advisors comprise the formal advising group. Informally, many different

individuals, within and outside the institution, provide advice related to academic and career issues.

Faculty Advisors. College and university faculty provide the majority of academic advising to today's college students. Faculty advisors are described as members of the university's instructional staff who spend 50 percent or more of their time engaged in any combination of teaching, research or service, and less than 50 percent of their time performing advising-related activities.

The complexity, specificity, and changing nature of academic advising makes it difficult for faculty advisors to provide all aspects of advising accurately. Since most faculty are heavily engaged in teaching and/or research, it is difficult for them to remain current on all of the rules, regulations and policies governing advising. Even the most conscientious faculty advisors find it difficult to keep track of the many details that are necessary for course scheduling and registration. While students often seek out faculty members for advice on career-related issues, faculty are frequently more comfortable helping students with decisions regarding graduate and professional school.

Professional Advisors. A second group of university personnel, termed professional advisors also provide undergraduates with advising. Professional advisors can be described as university personnel who spend more than 50 percent of their work time providing advising-related activities regardless of their job title or work location.

Professional advisors can develop an in-depth knowledge of the procedural details and specific academic information that students need to know through specialized training covering the university's rules, regulations and policies regarding academic advising, registration and graduation. The institution may find coordination and communication with a small group of advisors to be easier, thus improving the institution's ability to implement changes in academic rules and procedures. In addition, professional advisors can be trained to address special needs of first-time-in-college students, transfer students, students who are academically unprepared, and students on academic probation.

Professional advisors for career advising have the time and training necessary to assist students who have problems related to being undecided majors or not gaining admissions to a limited access program. Although professional advisors may lack detailed knowledge of specific disciplines, they can often compensate for this by having extensive resources on hand to guide students through the career exploration process.

Peer Advisors. A third group utilized on some campuses to provide academic advising services for students is peer advisors. Peer advisors usually are upper-division college students who are trained to assist academic advisors and work with specific groups such as transfers and first-time-in-college students. New student orientation programs frequently rely on peer advisors to orient students to campus and to assist them with the registration process. New students often look to their peers for support, basic information, and

assistance with course scheduling and registration. As a result, students are often more comfortable talking with a peer advisor than with faculty or professional advisors.

When used to provide career advising, peer advisors are asked to perform the basic functions of the career office. These functions include, but are not limited to: (1) keeping the written resources and guidance materials organized and accessible; (2) retrieving information and resources for students; and (3) assisting students with the operation of the computer-assisted career guidance systems. Peer advisors are not generally used to provide the counseling aspects of career advising since they often lack the skills and knowledge that are required of a career advisor.

Informal Advisors. Students look to many sources for answers to academic and career questions. In addition to the formal system of advising, a significant proportion of both academic and career advising is provided by individuals who are not trained advisors, e.g., friends, roommates, classmates, and family members. In addition to friends and family, some students seek information from departmental secretary's, other support staff, or graduate teaching assistants who are knowledgeable about the advising and registration process. These sources of advising are rarely recognized officially by the institutions, but the informal network does provide students with information and assistance, which unfortunately may be inaccurate or out of date. Errors can be made in the formal system as well, but those errors can more easily be detected and corrected. Information received from the informal system may impede a student's academic progress.

Linkages Between Academic and Career Advising

The placement of academic and career advising in the university's organizational structure may not be closely linked. The academic advising program is frequently part of the academic affairs unit of the university with a dean or chief academic affairs officer usually responsible for overseeing the academic advising system. Career advising programs, on the other hand, are usually part of the student affairs unit of the university. Academic advising and career advising often are further separated geographically, as they are located in different offices. The geographical and structural separation between academic advising and career advising makes it difficult for interaction to occur between the two programs.

The Role of Technology in Academic and Career Advising

Applications for computer technology in academic and career advising have only just begun to be realized. In Florida, the State University System (SUS) implemented the Student Academic Support System (SASS). SASS is an automated system for reading a student's academic record, for checking the student's courses against program degree requirements, for producing a report that addresses the student's academic progress, and for assisting the university with course planning and registration. Prior to SASS, students and advisors often lacked the basic academic information that was needed for academic advising. Using SASS, students can see how their credits meet each of the institution's academic requirements. Students can learn their status in

regard to the completion of general education and Gordon Rule requirements, as well as major and minor requirements. In addition, each university is able to individualize SASS so that it conforms to the needs and requirements of the particular institution. This allows institutions that are intrinsically diverse to reflect their unique differences in the advising process. Each university is currently developing and implementing SASS.

A variety of computer-assisted career guidance programs have also been developed for use on college campuses. The most notable programs are CHOICES, SIGI-PLUS, and DISCOVER. Each of these programs is designed to be used as a tool in the career decision-making process. These programs are generally designed to provide the student with information about specific careers. Some of the programs ask the students a series of questions regarding his or her values, interests and skills in an attempt to match the student with an appropriate career. None of the programs actually makes a decision for the student. It should be noted that computer-based advising systems are tools that allow advisors to help students plan their educational programs. They are not designed to replace a trained advisor.

Honors and Special Programs

Within the nine state universities, a number of special programs exist which further expand the opportunities available for academically talented students. In several of the state universities, undergraduate enhancement funds were used to support or expand honors programs for qualifying students. By combining general education courses and special seminars with small enrollments (25 or less) and distinguished faculty, honors programs offer academically talented students the opportunity to experience, simultaneously, the intellectual challenge and benefits of an exclusive liberal arts college and a major research university. In addition, honors programs have often been used as laboratories as faculty members try new courses or instructional methods aimed at improving undergraduate instruction. Because of the attractiveness of these programs, Florida's universities have been able to recruit more academically talented high school students for both within and outside the State of Florida as well as distinguished faculty members to the State University System. Currently, five state universities (Florida Agricultural and Mechanical University, Florida State University, the University of Central Florida, the University of South Florida, and the University of Florida) sponsor ongoing honors programs. Of the remaining four institutions, three are beginning honors programs this year.

Another category of special programs offered within the state universities are designed to assist those students that have been identified as being at risk. Florida Statute requires that students who score below a certain score on the SAT, ACT, ASSET, or MAPS subtests in mathematics or communication enroll in a college preparatory, remedial program. For the Scholastic Aptitude Test (SAT), the State has set minimum passing scores at 340 for the verbal section and 400 for the quantitative section of the test. Although college preparatory programs are only available at Florida Agricultural and Mechanical University, a variety of other student support programs are available at the other eight institutions. For example, at Florida State University, the Horizons Unlimited Program enrolls students, who need additional academic

assistance, in general education courses with small enrollments (generally less than 25) and faculty with excellent teaching skills to enable at risk students to receive high quality instruction. Similarly, the University of South Florida operates Project Thrust which provides expanded tutorial assistance to high-risk students in such courses as mathematics, statistics, biology, chemistry, physics, economics, music theory, French and Spanish.

Both honors and special assistance programs are designed to deliver high quality instruction to undergraduate students in smaller sections. For the honors student, smaller classes promote faculty interaction and offer unique learning opportunities designed to challenge their intellectual abilities. For the at-risk student, smaller classes with similar qualities might mean the difference in their successful completion of the requirements necessary for a degree. As a result, the important contribution of these programs to the overall enhancement of the undergraduate experience has, thus far, been achieved with limited enrollments.

1989-90 Undergraduate Enhancement Funding

The 1989 Legislature allocated $2.8 million for two separate components designed to enhance undergraduate education. The first component includes $1.7 million for a competitive grant program for undergraduate education enhancement. Specifically, the Legislature required that each state university president submit to the Board of Regents a proposal for an undergraduate enhancement grant. Each proposal was reviewed by a committee for funding based on its potential to enhance undergraduate education. In addition, each proposal was to specifically address how the outcomes of its undergraduate enhancement efforts will be evaluated. The second component involves a specific dollar amount of $1.1 million provided for faculty awards of $2,000 to $7,500 each for outstanding teaching and advising at the undergraduate level. Each proposal is to include recommendations and the rationale for award amounts to individual faculty members on each campus who have demonstrated outstanding teaching and advisement at the undergraduate level. The awards were limited to faculty who teach at least two undergraduate courses and advise students during the current year (1989-90).

The use of some form of incentive funding provides the Legislature with the ability to target specific outcomes which it would like to see achieved within postsecondary education. The competitive grant process provides each institution with an opportunity to develop new programs and to specify how these programs will enhance undergraduate education. Awards funding 11 proposals from eight of the nine universities were approved by the Board of Regents for a total of $1.7 million. A number of the programs funded provide centers for improving the quality of instruction in the classroom and increasing the academic advising services for special groups of students. In addition, the Legislature's undergraduate enhancement initiatives have had the additional beneficial effect of focussing the attention of the faculty and administrators on the state of undergraduate education within the State University System.

Faculty, administrators, business leaders, families and the federal government have joined the various study groups in criticizing the quality of

undergraduate education. The demand for evidence that the increased amount of public money financing higher education is producing educated graduates has increased in recent years. One of the most difficult state goals to measure is the improvement of the quality of undergraduate education. Evaluating whether a funded activity has produced any substantial improvement is very difficult when measurable outcomes are not specified in the beginning. In order to provide a better measure of accountability for appropriations to higher education, many states have required that proposals for funding include specific descriptions of the outcomes to be achieved through the funded activity. The specific objective to reduce class size is but one possible objective which might be used in this regard. Other outcomes specifically related to what and how much students learn, student retention and completion rates, or the number of full time faculty involved in undergraduate instruction might be more useful in institution-level efforts toward self improvement.

III. STUDENT SURVEYS

As part of the Commission's activities related to its study of student financial aid, undergraduate enhancement funding and the registration process, a student survey was conducted to obtain a sample of the opinions of students in Florida's community colleges and state universities. In addition, a pilot study was conducted to obtain a sample of the opinions and examine the achievement levels of students in one small section compared to one large section of the same calculus course (Calculus for Business and the Nonphysical Sciences-MAC 3233) at Florida State University. This section describes the procedures used to collect the data and analyze the results.

Statewide Student Survey

Student Sample

Eight institutions were selected for inclusion in the survey on the basis of their ability to provide a balanced geographic and demographic profile of the State. The institutions included were: (1) Miami-Dade Community College; (2) North Florida Community College; (3) Edison Community College; (4) Valencia Community College; (5) St. Johns Community College; (6) Florida International University; (7) Florida State University; and (8) the University of Central Florida. Based on 1987-88 data, 62 percent of Florida's total public postsecondary FTE enrollment was enrolled in the Community College System (CCS) while the remaining 38 percent was enrolled in the State University System (SUS). This proportional distribution was retained in the sample. The size of the student sample at participating institutions was determined on the basis of the total student FTE enrollment each contributed to the student sample. Table 3 illustrates the percent of FTE enrollment each institution contributed to the total as well as the number of surveys distributed for completion. Because the FTE enrollment was lower than expected at both St. Johns Community College and North Florida Community College, the number of surveys distributed was doubled to increase the validity of the sample. In the analysis of the results, a statistical weight was assigned to the surveys collected from these two institutions to compensate for the extra number distributed. A total of 1031 surveys were distributed among the eight participating institutions.

Survey Instrument and Procedures

The student questionnaire was divided into four sections covering basic demographic information and questions about registration processes, class size and advising, and financial aid. Most of the questions required a forced choice response. A few offered students an opportunity to clarify or write their own response. The questions included on the survey were created by Commission staff based upon relevant issues suggested by the legislative charge or the background literature.

Once a preliminary draft of the survey instrument was completed it was circulated among staff of the Board of Regents, the State Board of Community Colleges, the State Council of Student Body Presidents, and the participating

TABLE 3
SURVEY DISTRIBUTION

INSTITUTION	FTE ENROLLMENT	PERCENT OF FTE ENROLLMENT	NUMBER OF SURVEYS DISTRIBUTED
Universities			
Florida International	8,900	25	94
Florida State	16,300	47	177
Central Florida	9,800	28	105
Total	35,000	100	376
Community Colleges			
Edison	3,300	8	50
Miami-Dade	27,500	67	387
North Florida *	900	2	12
St. Johns River *	1,300	3	19
Valencia	8,100	20	125
Total	41,200	100	624
Total			
State Universities	89,157	38	376
Community Colleges	144,866	62	624

*Actual number of surveys distributed was 24 at North Florida and 38 at St. Johns River. A statistical weight was used to compensate for the additional number in the data analysis.

institutions. In addition, the instrument was reviewed by individuals with expertise in survey research methodology. A copy of the final survey instrument and a list of the individuals involved in the review process is appended. Based upon the input received, the survey instrument was revised by Commission staff and a pilot test was conducted at Florida State University in September.

Once the survey instrument was completed, Commission staff coordinated with the Vice President for Academic Affairs or the Director of Institutional Research at participating institutions for the distribution and completion of the surveys. The survey process involved day and evening, as well as upper and lower division classes in business, English and mathematics.

Results and Analysis

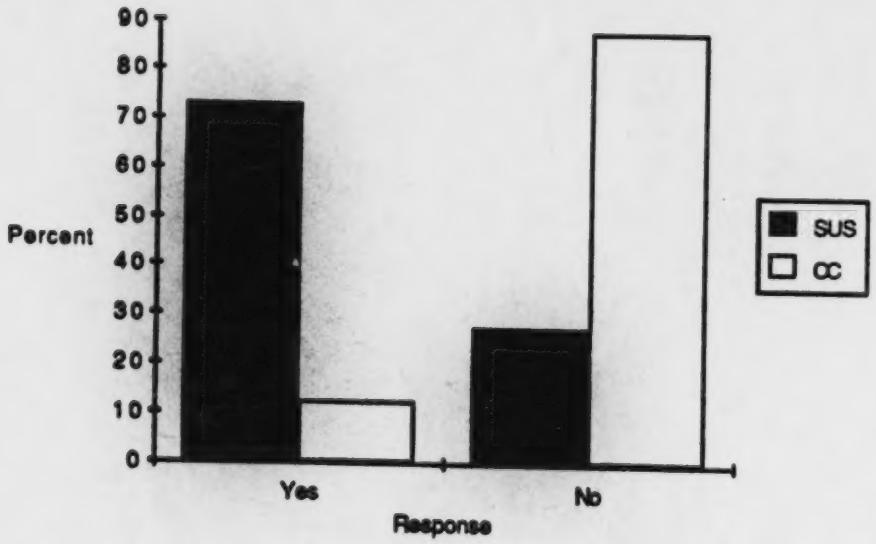
The survey data was analyzed using the Statistical Package for the Social Sciences, (SPSSX). Descriptive statistics such as frequency distributions and percentages for each question and response category were calculated. Further investigation into the differences between the responses of different categories of students as well as universities and community colleges was conducted when warranted. The frequency responses to individual items

concerning class size (24 through 28) are addressed in the sections which follow.

Class Size. When asked whether they had ever been enrolled in a class larger than 100, 62 percent of the respondents reported that they had not while 38 percent of the students indicated that they had. In the following question, when asked if they had ever been enrolled in classes of 30 or less, 77 percent indicated that they had been enrolled in such courses. When the responses were categorized by type of institution, differences in the response patterns emerged. As can be seen in Figure 1, a majority of university students (73 percent) indicated that they had been enrolled in classes larger than 100. In contrast, approximately 88 percent of the community college students indicated that they had not been enrolled in such classes. No such differences were observed for the similar item concerning classes smaller than 30. However, when the responses were recategorized by student classification an interesting result emerged.

FIGURE 1

PERCENTAGE OF STUDENTS ENROLLED IN CLASSES LARGER THAN 100 BY INSTITUTION TYPE

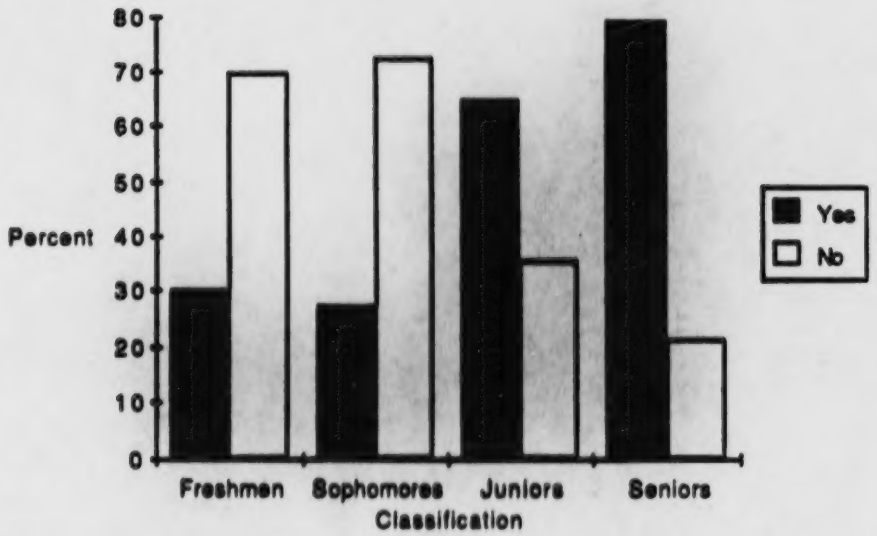


As can be seen in Figure 2, as students progressed through college attaining more credit hours and thereby more experience with different college courses, they were likely to have enrolled in large classes. Since the Commission surveyed students in the Fall semester, freshmen respondents had probably not

yet completed one full semester of coursework. In addition, sophomores in the sample may only just completed their 30th semester hour. This lack of experience with large classes as indicated in Figure 2, may be attributable to shorter periods of enrollment.

FIGURE 2

PERCENTAGE OF STUDENTS ENROLLED IN CLASSES LARGER THAN 100 BY STUDENT CLASSIFICATION



Questions 26(a) through 26(k) concerned a number of variables which have been suggested through the research literature as being affected by class size. Seventy-seven percent of the students indicated that the overall quality of the classes was either much greater or greater in small classes than in large. Similarly, approximately 68 percent perceived that the quality of instruction was much greater or greater in small classes. No differences in the overall pattern of responses were observed when the sample was categorized by type of institution or student classification.

When students were asked about the quality of instructor-student interaction, the overall responses favored smaller classes. Ninety percent of the students indicated that the chance to develop a personal relationship with the instructor was either much greater or greater in small classes. Similar results were reported when students were asked about their chance to make a contribution in class (85%), chance to ask a question in class (71 percent) and their ability to see and hear the instructor (75 percent). A definite preference toward the small class was reported by the students. No differences in the overall pattern of responses was observed when the sample was categorized by institution type. After the responses were broken down by

student classification, the length of student enrollment produced an interesting trend. As can be seen in Table 4, when asked about the chance to develop a personal relationship with the instructor, student responses in the first category (much greater in small classes) favored the smaller class more strongly as they progressed through their academic program.

TABLE 4

QUESTION 26-C
CHANCE TO DEVELOP A PERSONAL RELATIONSHIP WITH INSTRUCTORS DEPENDING ON CLASS SIZE

	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS
Much Greater in Small	57.7	58.5	71.2	78.3
Greater in Small	32.8	25.4	21.2	16.9
No Difference	9.5	14.4	3.8	4.8
Greater in Large	0.0	1.7	0.0	0.0
Much Greater in Large	0.0	0.0	3.8	0.0

In terms of students' perceptions of their own learning in either instructional setting, when asked about the amount of material learned, 47 percent perceived no difference between the amount of material learned in small or large classes. When responses for either small or large classes were aggregated, a slight majority (51 percent) indicated that the amount of material learned was either much greater or greater in small classes. As the body of research on class size and student achievement suggests, no continuing case can be made for increased learning in a particular size class. The student response to this item is consistent with the earlier research. After categorizing the responses by institution type for this item, community college students showed a stronger preference for the small class (56 percent) than university students (49 percent). Additionally, as can be seen in Table 5, as students progressed through their academic program, again a stronger preference for the smaller class began to emerge. When asked about their personal satisfaction with the class, 67 percent indicated that their satisfaction level was much greater or greater in small classes. When asked if their personal concentration on the course subject matter or lecture was any better in one size class over another, students indicated that their concentration was much greater or greater (64 percent) in small classes.

One idea which has been offered to explain some of the differences in student achievement levels reported in the literature for small and large class

TABLE 5

QUESTION 26-G
AMOUNT OF MATERIAL LEARNED BY CLASS SIZE

	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS
Much Greater/ Greater in Small	42.1	55.3	57.2	60.2
No Difference	53.8	44.7	41.0	39.8
Much Greater/ Greater in Large	3.0	0.0	1.9	0.0

settings, involves the idea that faculty may assign more work to smaller classes or grade them less stringently. When students were asked if the amount of work assigned was any different in one class setting over another, a clear majority (55 percent) perceived no difference in the amount of work assigned. Similarly, students were also asked if they perceived any differences in the chance to earn a high grade. A slight majority (46 percent) believed that their chances for a higher grade were either much greater or greater in the small class while 45 percent perceived no difference in either size class. When the responses were categorized by institution type, a greater percentage of community college students (56 percent) perceived a stronger chance for a higher grade in the small class than university students (41 percent).

In universities throughout the country, the use of teaching assistants has been a common practice. Graduate students pursuing advanced study are being used to deliver instructional services in areas of high demand throughout the State University System. In addition, in courses which commonly utilize large class sections, smaller discussion groups are sometimes scheduled at least once a week with teaching assistants to provide students with additional instruction in a small class setting.

To further explore actual student contact with these instructors, participants in the Commission's sample were asked if the use of teaching assistants was greater in either small or large classes. Of those responding, 46 percent perceived no difference in the use of teaching assistants as the primary instructor for small or large classes. When asked about their experience with discussion groups, 37 percent of students responding indicated that they had experienced no courses of this type. Of those students indicating that they had been enrolled in such a course (104), 33 percent perceived that the group had added to their understanding of the class. Twenty-one percent felt that the discussion group had helped them to make a better grade. Only eight percent believed that the groups had not helped them in any way. When the

student responses were categorized by institution type, no difference in the overall trend was observed. However, because discussion sections are more common in the state universities, a higher percentage of university students in the Commission's sample responded to this question.

Finally, when asked in which type of classes they would choose to enroll if given a choice, students demonstrated a preference for the small class. Fifty-seven percent of the students responding indicated that they would choose to enroll in small classes. In addition, 28 percent indicated that their decision would depend on an outside factor other than class size. Students favoring the large class accounted for no more than six percent of the total responses, while approximately nine percent of the students indicated that they would enroll in either a large or small class.

Academic Advising. The questionnaire also contained several items concerning student perceptions of the academic and career advising services provided on their campuses (questions 15 and 17). Since the focus of this study was on the use of undergraduate enhancement funding within the State University System, the following discussion of the results is limited to the responses of students enrolled at the three participating state universities.

When Student Academic Support System (SASS) asked about their knowledge of the SASS, 12 percent (39 students) of the State University System students indicated that they were familiar with SASS. Forty-six percent (18 students) of those who were familiar with the system indicated that they had actually used SASS. When asked how useful SASS was for advisement purposes, 26 percent believed SASS was useful, approximately four percent indicated that SASS was not useful for academic advising and the majority (70 percent) were not sure. When students were later asked, in general, their opinion of the usefulness of automated advising systems for planning their academic programs, a similar pattern of responses was observed. In this instance, a smaller majority (63 percent) were unsure about the usefulness of these systems. No clear trends were discernible when the responses were categorized by student classification.

Academic advisement is performed in various ways on the campuses in the State University System. Students may from time to time be advised in groups or by individual faculty or professional advisors. In order to gain a better understanding of student experiences in this area, several questions were asked concerning the advising process. First, when students were asked if they had met with an advisor prior to registration for Fall Semester 1989, 70 percent reported that they had. However, as can be seen in Table 6, as the number of credit hours completed increases as indicated by student classification, the percentage of students who reported visiting with an advisor declines.

TABLE 6

QUESTION 18-A
PERCENTAGE OF STUDENTS MEETING AN ADVISOR

	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS
Yes	92.4	58.3	54.4	42.4
No	7.6	41.7	45.6	57.6

When asked more specifically about the type of advisor, 46 percent of university students responding indicated that they had met with a faculty member. Other types of advisors used were a student or peer advisor (24%), a professional academic advisor (11%) and some other type of advisor (less than one percent). For those students who did not receive advisement in the selection of their courses, 41 percent believed they did not need advisement. Approximately 22 percent reported that they chose not to meet with their advisor and approximately 11 percent indicated that they did not have the time to meet with their advisor. Other responses for this item included approximately nine percent who did not know where to go for advisement, four percent who could not make an appointment with their advisor and 11 percent who had some other reason for not receiving advisement. No practical difference in this general trend was observed when the responses were categorized by student classifications.

Finally, when asked how satisfied they were with the academic advising services provided to them, 46 percent of the students responded that they were either very satisfied or satisfied, 34 percent indicated that they were indifferent, and 20 percent reported that they were either very dissatisfied or dissatisfied with the academic advising services they had received. Table 7 illustrates that when the responses were further analyzed by student classification no overall trend was observed. However, juniors and seniors exhibited greater dissatisfaction with the advising services they received than freshmen and sophomores.

TABLE 7

QUESTION 18-D
SATISFACTION OF STUDENTS WITH ACADEMIC ADVISEMENT

	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS
Very Satisfied/ Satisfied	52.2	45.9	36.0	43.1
Neither	34.5	41.7	39.3	24.1
Very Dissatisfied/ Dissatisfied	13.4	12.5	24.7	32.8

Career Advising. Students at all of the state universities are provided with opportunities for career advisement. As with academic advising, this service can be provided in a number of ways. The Commission's student questionnaire also investigated student perceptions of this service area (Question 19).

Overall, students in the State University System institutions surveyed had either not received or not taken advantage of the career counseling services. When asked if they had received career counseling, 89 percent of the students responding reported that they had not received such counseling at their present institution. Further analysis illustrated in Table 8 reveals that as the number of credit hours completed increases, as indicated by student classification, the percentage of students who reported visiting with an advisor also increases. As students progress toward choosing a major or graduation, formal career advising may become more important to them.

TABLE 8

QUESTION 19-A
PERCENTAGE OF STUDENTS RECEIVING CAREER COUNSELING

	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS
Yes	2.8	8.3	17.6	20.0
No	97.2	91.7	82.4	80.0

Of those who had received some career counseling, a professional career counselor was most often the provider of such services, followed by a faculty member, and a trained student peer counselor in that order. When asked about their satisfaction with the career advisement services received from their

institution, the majority of students (48%) were neither satisfied nor dissatisfied. Thirty-three percent of the students were either very satisfied or satisfied while 19 percent were dissatisfied to some degree. Analysis of the results by student classification (Table 9) indicates that seniors as a group are more satisfied than other student groups with the career counseling they have received. These results may be attributable in part to an earlier finding which indicated that a higher percentage of seniors use these services.

TABLE 9

QUESTION 19-C
SATISFACTION OF STUDENTS WITH CAREER ADVISEMENT

	FRESHMEN	SOPHOMORES	JUNIORS	SENIORS
Very Satisfied/ Satisfied	26.6	30.0	27.3	44.8
No Difference	53.3	50.0	52.3	34.5
Very Dissatisfied/ Dissatisfied	20.0	10.0	20.5	20.7

Open Ended Responses. In addition to the forced choice responses concerning academic and career advising, the Commission's student questionnaire also offered the students an opportunity to provide written comments on the academic and career advising services they have received. The responses were reviewed by Commission staff and summarized into broad categories.

The student comments concerning academic advising can be summarized into three broad categories: concerns over the quality or lack of academic advisors; dissatisfaction with the information or services provided; and the desire for more personal, individual contact during the advising process.

From the comments submitted, it appeared that concerns were directed toward meeting with a professional academic advisor. Several comments concerning long lines and the unavailability of advising services in the late afternoon, evenings and weekends was a frequent complaint. A number of students also commented on their experiences with advisors who appeared to be overworked and unhappy in their roles. Similarly, students often expressed dissatisfaction with the group advising process. Many noted that students have individual needs and concerns that are not being considered when advising is conducted in large groups.

Delivering accurate and timely advice to students has long been a concern in efforts to improve academic advising services. Many of the student comments expressed frustration over being given incorrect information during the advising process. One of the primary benefits of the Student Academic Support

approximately 134 students which is taught in a large lecture hall seating up to 200 students. Section 8 is a smaller class of approximately 30 students taught in a classroom setting which seats approximately 40 students. Both classes were taught at the same time (5:05 p.m. to 6:30 p.m. Monday and Wednesday). In addition, with the assistance of the Dean for Undergraduate Studies, the Dean for Arts and Sciences, and the Department of Mathematics, the pilot experiment was set up in such a manner that many of the obvious factors which might produce differences in student achievement levels other than class size were controlled. Both sections utilized the same textbook, homework assignments, testing procedures and grading standards. Although the teaching assistants assigned to each section were different, the same instructor notes were used by each to organize and deliver classroom instruction. Students enrolled for the course and the sections were created on a random basis.

The survey instrument was designed using the items related to class size from the Commission's statewide student questionnaire. Some questions were revised where necessary for this application. An appropriate number of surveys were provided to each instructor for distribution during class on the same date. Grade rosters were provided to the Commission at the end of the semester. The final letter grades in each section provided the basis for the analysis of achievement levels in the two sections.

Survey Results and Analysis

The survey data was analyzed using the Statistical Package for the Social Sciences (SPSSX). Descriptive statistics such as frequency distributions and percentages for each question and response category were calculated. Further investigation into the differences between the responses of different categories of students as well as the different sections was conducted when warranted.

The first two items on the survey asked students about their experience with classes of less than 30 and more than 100 students. Table 10 illustrates the student response to these questions. The largest number of students indicated that 25 to 50 percent of their classes were larger than 100. Similarly, when asked about the percentage of their courses which were less than 30, approximately 47 percent of the students indicated that less than 10 percent of their courses fell in this category.

When asked if the overall quality of their classes was any greater in small or large class settings, students favored the smaller class. Approximately 78 percent of the students indicated that the overall quality of their classes was much greater or greater in the small classes. Similarly, 64 percent indicated that the quality of instruction in their classes was much greater or greater in the small classes. Further, when asked about the ability to have a personal relationship with their instruction, 89 percent of the students perceived the quality of the relationship with their instructor was much greater or greater in the small classes. No difference in the overall trend of the responses was observed when the responses were categorized by section size.

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TABLE 10

PERCENTAGE OF CLASSES LARGER THAN 100 AND LESS THAN 30

RESPONSE CATEGORIES	CLASS SIZE LARGER THAN 100	CLASS SIZE LESS THAN 30
Less than 10%	17	47
10 to 25%	19	23
25 to 50%	33	19
50 to 75%	25	9
Greater than 75%	6	2

Several items asked students about their opportunities to interact with the instructor in the classroom. When students were asked about the chance to make a contribution in class, 84 percent perceived their chance to make a contribution in class as much greater or greater in small classes. Further, when asked about the chance to ask a question or the ability to see and hear the instructor, when the responses were aggregated as illustrated in Table 10, the clear majority of student favored the small class. Approximately 63 percent of the students felt that the chance to ask a question was much greater or greater in the small class. Similarly, 63 percent felt that their ability to see and hear was also much greater or greater in small class. And finally, students also favored small classes when asked about their ability to concentrate on the subject matter or lecture. Sixty percent felt that their personal concentration was either much greater or greater in small classes.

Several of the questions on the survey asked students about their academic assignments and performance. Approximately 82 percent of the students indicated that there was no difference in the amount of work assigned in small or large classes. When asked about their perceptions of the chance for earning a higher grade, 39 percent felt there was no difference in the opportunity to earn a high grade in either size class. However, when the responses were categorized by section size, some differences in the response pattern emerged. Table 11 illustrates the responses for this item by section. Student in the larger section perceived the small class as providing a better opportunity to earn a higher grade while those in the smaller section perceived no difference in their change to receive a higher grade in either size class. When asked about the amount of material learned in small versus large classes, student responses were almost evenly split between those favoring the small class and those perceiving no difference in the amount of material learned in either setting.

TABLE 11

PERCEPTION OF CHANCE TO EARN A HIGHER GRADE BY CLASS SIZE

	LARGE CLASS (>100)	SMALL CLASS (<30)
Much greater/greater in small	55	39
No difference	37	50
Much greater/greater in large	8	11

Finally, when asked about their personal satisfaction with the class, students indicated that their personal satisfaction was much greater or greater in small classes. And when asked in which type of class they would choose to enroll if given a choice, students demonstrated a preference for the small class. Fifty-one percent of the students responding indicated that they would

choose to enroll in small classes. In addition, 33 percent indicated that their decision would depend on an outside factor other than class size. Students favoring the large class accounted for no more than seven percent of the total responses. While approximately six percent of the students indicated that they would enroll in either a large or small class.

Class Achievement Levels

Final letter grades were collected for both class sections. Table 12 illustrates the grade distribution for each section. The small and large section began the semester with 29 students and 120 students respectively. As can be seen in the table, three students withdrew from each section over the course of the semester.

TABLE 12

GRADE DISTRIBUTION FOR COURSE SECTIONS IN THE PILOT STUDY

	A	B	C	D	F	WD	TOTAL
Small Section	4	6	9	3	4	3	29
Large Section	7	23	28	23	33	3	117

In order to determine if any significant differences existed in the achievement levels of students in the large and the small section a chi-square statistical test for independent groups was conducted. No statistically significant difference was found to exist between the grade distributions at the .05 level (x^2=8.8, df=5). This result is consistent with the majority of studies involving students of college age which have found no significant difference in the achievement levels of students in small versus large classes.

This pilot study was conducted to provide an examination of the differences in student opinion and achievement levels which might exist in different size sections of the same course. The study was designed to eliminate many of the factors present in previous research into the relationship between class size and student achievement which might have influenced the result. Both sections used the same text books, course syllabus, meeting times, testing and grading standards and assignments. The two sections were created randomly to provide diversity in the student characteristics in each section. Although different teaching assistants were used for the sections, the same lecture notes were used as a basis for classroom instruction.

Summary

Overall, the Commission's surveys of students concerning their opinions of class size has shown a clear preference for smaller classes. Despite the student indications that no convincing difference exists in the amount of material learned by students or the chances for receiving a higher grade in either small or large classes, students still prefer the small class setting. However, the Florida State University students in the large section perceived the smaller classes as offering them a better opportunity to earn a higher grade, while students in the smaller section perceived no difference in their ability to earn a higher grade in a small or large class. Although beyond the scope of this study, further investigation into the potential differences between the preferences of students in large and small classes might prove useful. These results are consistent with research findings suggesting that no significant difference exists in the achievement levels of students in small or large classes which can be attributed to class size alone.

In terms of academic and career advising, the results of the statewide survey indicates that some problems exist. While most freshmen receive some form of academic advising, the number seems to decline as students progress through their academic career. It is not clear whether the students do not need it, as they have indicated in their responses or whether they have not benefited from the experience. The Student Academic Support System (SASS) seems to be a relatively unknown and largely unavailable resource among the majority of students at this time. Similarly, the career advising services available on all university campuses also appear to be underused until the students approach the final stages of their course of study. Given the importance of academic and career advising as well as the monetary investment the State has made in the Student Academic Support System (SASS), these results suggest that some further assessment of the organization and delivery of these services is warranted.

IV. INTERVIEWS WITH UNIVERSITY PERSONNEL

In order to further address the questions concerning academic and career advising raised by the Legislature, a series of interviews was conducted with campus representatives involved with the delivery of these services to students. University presidents were asked to provide the names and telephone numbers for individuals at each institution who could provide information regarding the administration and operation of academic and career advising systems and the Student Academic Support System (SASS). Once the campus representatives were identified, a structured telephone interview was conducted with each. In one case, despite repeated attempts, the specific individuals targeted for the interviews could not be reached. Under those circumstances, interviews with other members of the academic or career advising staff were substituted. A list of those interviewed and the questions used is included in Appendix A.

Results and Analysis

Diversity is a key word for understanding the delivery of academic and career advising in the State University System. Each of the institutions in the SUS uses a variety of personnel and systems for delivering academic and career advising. The information gathered from telephone interviews with the institutional representatives has been organized into categories suggested by the topics covered.

Fragmentation of Academic and Career Advising Services

For the most part, academic and career advising is fragmented on each campus. Structurally, academic advising programs are usually part of the academic affairs division of the university while career advising programs are typically part of the student affairs division. The result of this separation is that students do not receive assistance with academic, career, and life planning that is integrated and holistic.

During the first year or two of college, most students, due to their concern over registering for courses, tend to be focused on short-term course scheduling. Many fail to consider or develop long-range plans. Experts on career development that were interviewed felt a career plan was important to guide students in developing mature, rational academic plans. Most of the experts agree, however, that many students fail to adequately develop a career plan during their early college years.

Without adequate career/life planning students often end up selecting a major late in their sophomore year after having changed their minds several times. The delayed declaration of an academic major is believed to contribute to lengthening the time required for undergraduates to graduate.

With the current fragmentation in the delivery of career and academic advising students will continue to drift through their undergraduate years without an integrated, well constructed plan for taking full advantage of their college experience.

Faculty Advisors

Due to practical and economic realities, faculty have traditionally been expected to provide the majority of academic advising. However, the majority of those interviewed felt that the role of the faculty advisor should be limited. Most of those surveyed believe that faculty advisors are not the best academic advisors for lower division students. Freshmen and sophomores need information on numerous college, university and state rules related to the completion of general education and other requirements for entrance into the upper division and graduation. Rules related to CLAST and to Gordon Rule requirements must also be provided in a clear, concise and timely manner. College and university rules and procedures are subject to occasional changes. Faculty members do not have the time or energy to keep up with the multitude of rules and policy changes. Extensive and expensive training would have to be developed at each university to inform the faculty of the many procedures and policies affecting undergraduates. The institutional representatives surveyed also noted that many professors lack the interest and willingness to invest the time to be effective advisors for lower-division students.

Some of those interviewed pointed out that college faculty should not be totally removed from assisting lower-division students; it was suggested that faculty should engage in mentoring these students. By discussing the broader academic and career issues that interest students, faculty can be very powerful catalysts for encouraging the intellectual development of college students.

Those interviewed agreed that faculty members should be advisors for upper-division students. They believe that faculty are usually more aware of the degree requirements for students in their major area and the familiarity with departmental major requirements makes faculty advisors excellent candidates for upper-division advising. Most think that it is usually better to select those faculty who are both interested and skilled in advising, as faculty who do not have these interests and skills usually make poor advisors.

Consensus was not reached among those interviewed regarding the role of the faculty advisor in providing career advisement. Although some believe that faculty can provide good advice about careers related to their field or related fields, the career experts feel that faculty do not make good career advisors. They point out that most faculty rarely venture outside the academy and that their experiences in the career world are usually limited. The career experts believe career advising and counseling require specialized skills and knowledge that faculty often lack.

Professional Advisors

Results from the interviews with the institutional representatives suggest that the appropriate role for professional advisors is the advising of special groups. These special groups include: students who have not decided on a major; students who have decided on a major but who have not been admitted due to limited access admissions requirements; students who are enrolled as alternative admits; students who are on academic probation or who may enter probationary status; student athletes; and students who are in the first year

of college. Professional advisors are also utilized by some of the larger colleges and schools in the universities where advising offices are located within these entities.

The advantage of using professional advisors is that they can be thoroughly trained in all relevant rules and policies, thus providing more accurate information to students. Professional advisors as a group are usually credited with being more interested in providing academic and career advice. In addition, working with students who are undecided usually takes specialized skills and knowledge. When properly trained and prepared for advising, these individuals provide a much needed student service.

Most of those interviewed suggested that professional advisors are not necessarily the best advisors for upper-division students. They expressed the concern that most professional advisors lack specific knowledge of each major. Unless the professional advisor is very familiar with the specific major(s) or works with only a limited range of majors (for example only with business majors) then faculty advisors are viewed by those interviewed as more appropriate.

Some concern exists among the campus representatives regarding the requirements and credentials for professional advisors. The definition of a professional advisor does not specify the educational background or experiences necessary to be an advisor. It appears that many professional advisors are not professionally trained counselors or advisors, but are individuals who have been trained on the job for their advising responsibilities. Some of those interviewed suggest that this is becoming an issue as the ranks of professional advisors grow and they believe that professional advisors should have graduate training in a counseling or counseling-related field and/or related work experience.

Peer and Informal Advisors. Students who work as peer advisors serve a valuable service for other students, especially lower-division students. Although most peer advisors are found in new student orientation programs the use of peer advising is limited in the nine universities.

Students often seek the advice of friends, relatives and other individuals with whom they have a relationship. Another source of informal advice comes from personnel within the university whose job descriptions do not include academic or career advising. These individuals include secretaries, clerks, student affairs coordinators and a host of other staff. Informal advisors probably provide a great deal of information and advice to students, despite their rarely receiving training. The quality of advice from these informal advisors varies in quality. Generally, the administrators surveyed felt that such advice could do more harm than good.

The Student Academic Support System (SASS)

The questions regarding SASS produced some of the most interesting results. Each institution has been in the process of having SASS phased-in over a three year period. Each university is at a different point in offering SASS to students. All interviewed agree that SASS is a major development and will

prove to be an outstanding tool for advising. However, they also stated that SASS was only a tool for providing information and should never be a substitute for a trained advisor.

Most of the institutions provide students with access to a SASS audit through an advisor. When students voluntarily seek advising from their advisors or department, an audit report can be generated. Most of the institutions do not periodically generate and disseminate a degree audit for each student because of the high cost. Those institutions that require students to pick up materials prior to registration usually generate this report for them. Universities that do not require contact with the student prior to registration have not generally been producing a report for all students, or if so it is sent directly to the students' college or school where it may be filed in the students academic folders. Most did not want to mail the audit to students since they felt that the addresses held by the university were not up to date. Further, it is not always clear who in the university is responsible for increasing student awareness and access to SASS, as a result the implemenation process can be further complicated.

Access to SASS terminals is restricted and limited at most universities. For example, only advisors and some staff have access to the computers. One or two universities are considering making terminals easily available for direct student use, however, this is does not appear to be the norm. Some universities have attempted to generate interest in SASS by asking the local newspaper to run an article on it. Student Government officers have been asked to become involved in advertising the system. Some are considering including SASS audits during student orientations in order to acquaint new students with the system. It should be noted that, for the most part, students are expected to actively seek a report for themselves. However, most representatives believe that SASS is not well known and is therefore not being used heavily by students. At the institutional level, the SASS system maybe centralized in one office or decentralized. In those that are decentralized, individual departments are usually responsible for updating the curriculum information that is relevant to their area. For example, a new course may be added that meets specific requirements. In a centralized SASS operation, the coordinator oversees the process for placing that information into the system. In a decentralized system the responsibility falls upon the college or department. It appears that some colleges and departments do a better job of updating and correcting the system's information than do others. In the institutions where the system is decentralized, coordination and control of SASS does not appear to be very strong.

When operating at full capacity, SASS will be able to generate reports which will assist all levels of university decision makers. For example, staff who schedule course offerings will have access to student course needs and demands. Universities will be able to predict with increased accuracy the number of courses and instructors required to handle the students instructional needs. One innovative idea related to SASS is to include career information with the SASS report. This is currently under consideration at the University of Florida. Students will be told what careers are related to the major they request. They will be encouraged to develop a career plan and instructed where to go for help.

Some institutions, especially the large ones, note that they received the same number of positions to operate SASS that the smaller universities received. The larger schools point out that they need more staff to operate the system. A number of those surveyed noted that a great deal of money was expended to purchase hardware and software, but that little or no money is now available for training and supporting those individuals who operate the system.

In summary, the campus representatives interviewed described problems with integration of the academic and career advising services within the State University System and a variety of institution-level difficulties related to the implementation of the Student Academic Support System (SASS). Further, many of the traditional problems connected with the delivery of adivsing services to students such as providing accurate information on specific degree requirements, course scheduling, or institution specific academic policies continue to exist. However, a consensus existed among those interviewed regarding the value of expanding the role of professional advisors with lower division and at-risk students. In addition, many of those interviewed expressed the hope that the full implementation of the SASS would help alleviate some of the advising difficulties at each institution.

V. CLASS SIZE LEVELS

Class Size in General Education Courses

In order to examine the enrollment levels of courses which make up the general education curriculum in the State University System, a subset of information contained in the Board of Regents' Instructional-Activity data file was used.

First, charts were mailed through the Board of Regents to each institution asking for the common course prefix and number for all courses offered which could be used by students to meet the general education requirements from the summer semester 1988 through the fall semester 1989. The chart required each institution to categorize its coursework into one of six broad general education groups. These general education categories are defined in Table 13. It should be noted that there was some variation among institutions as to the categorization of some coursework. Once this information was collected and reviewed, the assistance of the Board of Regents staff was sought in selecting this subset of courses from the total instructional-activity file. A file was created which contained all sections offered of the general education courses during the summer 1988 through the spring 1989 for each university. In addition, the file contained information on the number of students enrolled in each section, the type of course (such as discussion, lecture or lab) and the number of credit hours offered for completion.

Often institutions will arrange for faculty members with particular skills in a subject area to address multiple sections of the same course on a weekly basis. A review of the course information in the initial database indicated that several individual sections of a specific course appeared to be meeting at the same time, on the same days and in the same room. The practice appeared to exist in several disciplines and across several institutions. To resolve this conflict and to gain a more accurate picture of class size levels, all sections of the same course which met together at least twice a week were collapsed into one large section.

In the case of the University of South Florida, the range of courses which could be used to meet the general education requirements under the language in the institutions catalog was so large that it presented a problem. Under the present policy, the catalog could be interpreted to mean any course within some departments and disciplines could be used up through the 4000 level to complete the institution's general education requirements. After consultation with the Dean of Arts and Sciences, courses at the 4000 level were eliminated from the database. Since most students would have completed their general education requirements while satisfying the prerequisites for courses at the 4000 level, they could be safely excluded from consideration.

Reliable baseline data on class size levels within the State University System prior to the start of the undergraduate enhancement appropriations was not readily available for comparison. Further, applicable national data on class size levels which could be used for comparison purposes could not be located. As a result, any reliable judgements concerning the progress of the State University System in reducing class size levels within the undergraduate core

TABLE 13

COURSEWORK INCLUDED IN GENERAL EDUCATION CATEGORIES

CATEGORY	COURSEWORK INCLUDED
English	English Composition Speech Communication Creative Writing
Mathematics	Mathematics, Algebra, Calculus and Precalculus, Statistics, Computer Science/ Computer Engineering/Information Sciences
Natural Sciences	Biological Sciences, Chemistry, Geology Geography, Meteorology, Oceanography, Physics
Humanities	Humanities Art/Music/Dance/Theatre History and Appreciation American and Afro-American Studies Philosophy, Religion Literature, Foreign Language Literature (for example French Literature)
Social Sciences	Sociology, Psychology Economics, Political Sciences History, Anthropology
Other	"Applied" courses from humanities and social sciences which are "vocational" in nature such as studio courses in art and dance, teacher preparation, or study and reading skills. Also includes: Applied Music, Theatre Arts Developmental Psychology Student Life Skills Physical Education

curriculum could not be made. Therefore, the database created for this study includes only those course sections which could be used by students to meet the general education requirements at their host institution. In addition, in order to gain a more accurate picture of class size levels, multiple sections of the same course exhibiting duplicate meeting time, date and place more than once a week were collapsed to make one large section. Further, 4000 level courses at the University of South Florida were not included in the database for practical reasons.

Results and Analysis

Using the database created for the study, the average class size for each category of coursework was computed. As can be seen in Table 14, the average class size by course category varies across institutions. Average class sizes in English vary from a low of 19.88 at Florida Atlantic University to a high of 26.73 at Florida A & M University. In mathematics, the lowest average class size was 33.07 at Florida Atlantic University while the University of Florida exhibited the highest average of 61.17. Florida International University reported the lowest average class size in humanities (19.44) while the University of Florida possessed the highest (58.67). Social sciences and natural sciences, with few exceptions exhibited the highest average class size of the six categories. The average class size in social sciences ranged from 47.83 at the University of North Florida to 88.25 at the University of Florida. Natural sciences also exhibited a considerable range in the average class size. The largest average class size was 123.33 at Florida Atlantic University while the lowest in this category was 28.95 at Florida International University.

A partial explanation for the difference in the average class size levels observed in social and natural science categories and those of the English, mathematics and humanities groups may lie in the specific uses of the undergraduate enhancement funding. During the first three years of the appropriations, undergraduate enhancement funds were directed by the Legislature for use in the reduction of class size levels in English, mathematics and foreign languages. In subsequent years, enhancement funds were used to provide advising services and to reduce class size in some other general education courses, however the overall trend toward focus upon English, mathematics and foreign languages was continued. Further, classes containing more than 40 students are not common in English composition and foreign language courses. The individual attention required in these areas and some mathematics courses precludes offering large sections. The average class size levels reported in Table 14 indicate that a difference exists in the size of classes in the these three categories when compared to those of social and natural sciences.

The Legislative charge for this study specifically directed the Commission to identify coursework within the general education curriculum with enrollment levels above and below 22 students. The first part of this analysis involved a count of the frequency and percentage calculation of the general education courses by category and institution with enrollment levels above and below 22.

TABLE 14
AVERAGE CLASS SIZE BY INSTITUTION
Summer 1988 through Spring 1989

INSTITUTION	ENGLISH	MATH	HUMANITIES	SOCIAL SCIENCE	NATURAL SCIENCE	OTHER
FAMU	26.73	34.17	38.75	55.28	43.94	45.40
FAU	19.88	33.07	36.77	53.21	123.33	
FIU	23.55	35.80	19.44	48.48	28.95	
FSU	24.38	51.31	45.93	74.24	51.94	101.45
UCF	24.39	47.34	42.27	86.60	106.14	
UF	26.60	61.17	58.67	88.25	74.49	20.43
UNF	23.19	35.73	56.61	47.83	38.65	8.73
USF	20.99	40.52	20.09	52.83	37.36	38.40
UWF	23.05	35.56	28.00	67.56	31.09	40.69

As can be seen in Table 15 and Table 16, considerable variation in the results is evident by both course category and by institution. However, some evidence of a trend exists in mathematics and social science. The percentage of classes above 22 in both of these categories of coursework is with few exceptions consistently high. In mathematics, with the exception of FAU, the percentage of class sections above 22 ranges from 71 percent to 98 percent. Similarly, in social science, the percentage of classes above 22 ranges from 80 percent to as high as 100 percent. The averages for the SUS also reflect this trend with 83 percent of mathematics sections and 88 percent of the social science sections enrolling more than 22 students. In addition, as illustrated by Table 16, 70 percent of all general education course sections offered during the period of study were above the 22 student benchmark used for this analysis.

TABLE 15

FREQUENCIES OF GENERAL EDUCATION CLASS ENROLLMENTS
ABOVE AND BELOW 22 BY COURSE CATEGORY

COURSE	FAMU		FAU		FIU		FSU		UCF		UF		UNF		USF	
	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22
English	14	113	45	6	25	57	40	220	15	97	62	240	24	39	93	18
Mathematics	8	105	32	26	25	147	13	125	1	58	60	360	14	52	60	202
Humanities	17	88	9	22	137	81	24	239	12	116	41	259	4	34	610	376
Social Science	0	99	3	36	12	74	15	202	1	52	25	277	12	60	95	386
Natural Science	19	76	0	3	97	66	146	205	3	19	151	216	3	14	240	121
Other	4	43	--	--	--	--	12	80	--	--	--	--	11	0	3	7
TOTAL	62	524	89	93	296	425	250	1071	32	342	339	1352	68	199	1101	1110

TABLE 16

PERCENTAGES OF GENERAL EDUCATION CLASS ENROLLMENTS
ABOVE AND BELOW 22 BY COURSE CATEGORY

COURSE	FAMU		FAU		FIU		FSU		UCF		UF		UNF		USF	
	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22	LT23	GT22
English	11	89	88	12	30	70	15	85	13	87	21	79	38	62	84	16
Mathematics	7	93	55	45	15	85	9	91	2	98	14	86	21	79	23	77
Humanities	16	84	29	71	63	37	9	91	9	91	14	86	11	89	62	38
Social Science	0	100	8	92	14	86	7	93	2	98	8	92	17	83	20	80
Natural Science	20	80	0	100	60	40	42	58	14	86	41	59	18	82	66	34
Other	9	91	--	--	--	--	13	87	--	--	--	--	100	0	30	70
TOTAL	11	89	49	51	41	59	19	81	9	91	20	80	25	75	50	50

As was explained in Chapter II, in evaluating the progress of the system in reducing class size in English, mathematics and foreign languages, the Board of Regents has equated the target 22 to 1 student faculty ratio to imply an average class size of 27.5 per course. In order to gain another perspective on the level of class size within the SUS, Table 17 illustrates the class size average using 27 as a benchmark instead of 22. As can be seen from the table, the overall trend toward larger enrollment levels in mathematics and social sciences remains despite the use of a higher benchmark. Seventy percent of all mathematics sections and 81 percent of all social science sections offered within the undergraduate core curriculum during the year enrolled more than 27 students. However, in English, humanities and natural sciences the percentages of class sections containing 27 or less students represents the majority with the largest gain represented in English coursework. Eighty-one percent of the general education English sections offered enrolled 27 or less students.

TABLE 17

FREQUENCY AND PERCENT OF GENERAL EDUCATION CLASS ENROLLMENTS ABOVE AND BELOW 27 BY COURSE CATEGORY

	27 OR LESS		ABOVE 27	
	F	%	F	%
English	928	81	223	19
Mathematics	408	30	942	70
Humanities	1117	53	986	47
Social Sciences	261	19	1104	81
Natural Sciences	836	59	588	41
Other	48	27	132	73

To gain further insight into the range of class sizes above 22 and 27 students, some additional numeric categories were added to the analysis. Table 18 illustrates the range of class sizes up to and above 99 and the average size of the class sections within each numeric category. The overall trend in general education English courses is heavily weighted toward smaller classes with 99 percent of all sections offered enrolling less than 40 students. In humanities 78 percent of all general education sections offered contained less than 40 students. The findings for mathematics, social sciences and natural sciences are not as promising.

An important point also illustrated by Table 18 concerns the number of sections in the higher numeric ranges and the average and maximum size of those sections. Approximately 82 percent of all general education mathematics sections contain less than 50 students. However, there are also 81 mathematics sections in the SUS enrolling more than 99 students with an average class size of 227.5. The largest class reported in this category

TABLE 18

FREQUENCIES AND AVERAGE CLASS SIZE BY COURSE CATEGORY FOR THE STATE UNIVERSITY SYSTEM

		LT23	23-27	28-39	40-49	50-59	60-99	GT99(*)	TOTAL
English	Frequency	328	600	208	8	6	0	1	1151
	Average Size	19.2	24.8	29.9	43.6	53.8	0	149.0	24.5
Mathematics	Frequency	231	177	486	208	69	98	81	1350
	Average Size	15.9	25.2	33.1	43.8	53.6	73.8	227.5	46.3
Humanities	Frequency	864	253	525	234	89	76	62	2103
	Average Size	11.1	24.9	33.3	43.6	53.9	71.8	220.3	32.1
Social Sciences	Frequency	166	95	182	277	191	227	227	1365
	Average Size	15.5	24.7	34.0	44.6	53.7	73.6	170.0	65.2
Natural Sciences	Frequency	675	161	152	48	55	117	216	1424
	Average Size	15.2	24.4	32.6	44.9	53.4	76.7	183.1	51.1
Other	Frequency	34	14	32	31	34	10	25	180
	Average Size	12.4	24.6	34.0	44.0	53.7	81.3	270.4	70.1

*This column represents class sizes, ranging from as small as 100, depending upon the discipline.

TABLE 19

FREQUENCIES AND AVERAGE CLASS SIZE BY COURSE CATEGORY FOR THE STATE UNIVERSITY SYSTEM
(1000 LEVEL COURSES ONLY)

		LT23	23-27	28-39	40-49	50-59	60-99	GT99	TOTAL
English	Frequency	315	581	196	5	4	0	0	1101
	Average Size	19.56	24.81	29.77	43.60	55.0	0	0	24.39
Mathematics	Frequency	61	99	182	47	12	28	24	453
	Average Size	16.49	25.36	32.10	43.26	53.67	74.75	241.83	44.0
Humanities	Frequency	239	66	101	10	16	4	17	453
	Average Size	9.37	24.65	32.46	41.90	56.38	66.0	353.59	32.54
Social Sciences	Frequency	12	4	17	41	23	53	35	185
	Average Size	16.25	24.0	32.71	45.46	53.35	72.53	175.69	75.30
Natural Sciences	Frequency	205	101	73	22	12	37	104	554
	Average Size	17.28	24.22	32.63	45.27	52.58	75.81	170.53	55.12
Other	Frequency	3	4	14	14	32	7	14	88
	Average Size	18.33	25.25	32.79	45.14	53.94	83.00	175.93	68.38

contained 488 students. Similarly 66 percent of all general education social sciences sections offered contained more than 40 students. Of that number, 227 or 16 percent enrolled more than 99 students. In natural sciences, the trend is similar to that in the social sciences with 216 sections or 15 percent containing more than 99 students. The largest class reported in humanities contained 1,135 students. In social science and natural science the largest classes contained 318 and 996 students respectively.

When mathematics sections at the 1000 level only were reviewed, the number of sections over 99 declined but the average class size increased. As can be seen in Table 19, at the 1000 level, 24 general education mathematics sections enrolled more than 99 students yet the average class size increased to 241.83. This general pattern is true for humanities and social sciences as well. At the 1000 level the average class size in these areas increases for the sections with enrollments over 99 students.

As these results illustrate, by the time the average undergraduate student completes the general education requirements at one of Florida's nine state universities, large classes will be a phenomenon often encountered. Class sections enrolling more than 100 students are prevalent within the general education curriculum. In addition, the prevalence of these larger classes does vary by course category. For example, Table 19 indicates that students enrolling in areas other than English have a higher probability of experiencing larger classes. In addition, the attainment of a student faculty ratio of 22 to 1 in all categories of general education coursework will be expensive and will require sacrifice in other areas. Given the questionable impact reductions in class size have on student achievement levels, other methods for improving the quality of undergraduate education beyond reducing class size seem warranted.

VI. ISSUES AND RECOMMENDATIONS

ISSUES AND RECOMMENDATIONS

To further strengthen undergraduate education, the State University System, during the past six years, has received a total of $34.25 million from the Florida Legislature for undergraduate enhancement. From 1982 through 1989, a minimum of $3.5 million and a maximum of approximately $10.8 million annually has been appropriated primarily for the enhancement of faculty salaries, improving undergraduate instruction, improving academic advising, and enhancing student services. During the first three years of the appropriations (1982-85), the primary use of the legislative funds for the enhancement of undergraduate education was for the reduction of class size in mathematics, English, and foreign languages through the hiring of additional faculty. In subsequent years, undergraduate enhancement funds were allocated to further improve undergraduate education in ways consistent with the recommendations contained in the 1987 Board of Regent's report, **Enhancing Undergraduate Education in the State University System.**

Class Size

In response to the Legislative charge given the Commission, a database was constructed which consisted of all courses offered which could be used to meet the general education requirements at each of the nine state universities from the Summer semester 1988 through the Spring smester 1989. Course prefix and number, enrollment of each section, type of class (lecture discussion or lab) and credit hours offered were some of the types of information collected. The database provided current information on class size levels within the undergraduate core curriculum in the State University System. A survey of student opinion concerning class size was also conducted to provide further insight into this issue. The following conclusions are offered based upon the Commission's research into class size in the State University System.

In order to provide a meaningful evaluation of the State's progress in improving the quality of undergraduate education over the course of the Legislative appropriations, the collection of consistent and appropriate data is necessary. The Commission found that some of the needed information was not readily available. Without extraordinary measures verifying that the undergraduate enhancement funds have been used in a manner consistent with the intent of the Legislature is not possible. Further, no comparable baseline information on average class size levels in the undergraduate core curriculum is available either nationally or within the State of Florida. To create such a database for the early years of the appropriation (1982-83) would be very difficult and expensive. Finally, accurate information concerning student retention rates in different class sections can not be obtained from the Board of Regents instructional activity file. This inability results from different policies at each of the nine state universities regarding the determination and reporting of student drops or withdrawals from class. Students who withdraw from or drop a class before the end of the term are not similarly identified if, identified at all, at each of the nine institutions.

No convincing evidence exists which would lead to the conclusion that students in classes of 30 or less exhibit higher levels of achievement than their

counterparts in larger classes. Research conducted on the impact of class size on student acheivement has been mixed. The majority of the studies which have been conducted were completed in a secondary education setting. A number of studies conducted in the late 1960s and early 1970s have concluded that class size has little or no impact on student cognitive growth. The results of the research conducted with students of college age are more heavily weighted toward a finding of no difference in the acheivement levels of students in small classes (approximately 30 students or less) versus large classes containing 100 or more students. One of the most complete studies was completed at Brigham Young University in 1985. Using the testing center archives, this study analyzed 305 sections from 24 different courses with enrollments ranging from 13 to 1006 students. A total of 16,230 test scores were analyzed. Based upon the results of this study, the authors concluded that class size has little or no impact on student achievement. Similarly, when asked if the amount of material learned or the probability of receiving a high grade was any greater in small or large classroom settings, the responses of students participating in the Commission's survey were equally divided between those students indicating no difference and those favoring smaller classes. Of the studies which have found differences in performance favoring either small or large classes, the differences may be attributable to such factors as the needs of a specifc subject area for more individualized instruction such as English composition or foreign language or to factors which could not be controlled in the study.

Smaller classes are important and beneficial in the teaching of some specific types of courses or subjects. Larger classes are not inherently bad forums for instruction. In some courses instruction through faculty lecture can be just as effective in classes of 50 or 60 as those containing 22. The opportunity to provide extremely high quality instruction by an eminent faculty member to as many students as is practical should not be missed. However, at some point the size and type of room or facility in which a large class is taught interferes with the process of instruction. When classes become so large that students cannot freely interact with an instructor or when the assignments must be substantially altered because grading student papers becomes too time consuming, the quality of the educational experience may suffer. Some subject matter requires frequent student-faculty interaction if instruction is to be effective. English composition classes and courses which can be used to meet the Gordon Rule writing requirements require that faculty members engage in the time consuming functions of correcting and commenting on student writing. Similarly, students learning a foreign language must be provided with ample opportunities for individual instruction in classroom and laboratory settings. In the natural sciences, laboratory sessions can only accomodate a limited number of students because of space and equipment limitations. As a result, depending upon the subject matter and goals of instruction in the course, small classes are more desirable in some courses than others.

Students in the Commission's survey overwhelmingly favored small classes. Survey participants indicated that the overall quality of classes, the quality of instruction, the chance to develop a personal relationship with the instructor, the chance to make a contribution or ask a question in class, the ability to see or hear the instructor, their ability to concentrate on the subject matter and their personal satisfaction with the class were either much

greater or greater in small classes. Despite the improbable relationship between smaller class size and higher levels of student achievement, many of the factors more prevalent in smaller classes are important to a student's overall satisfaction and therefore can be beneficial in enhancing student retention. Research has shown that the marginal student's intent to return to campus for additional semesters can best be influenced by their satisfaction with the quality of education at the university. If given a choice, fifty-seven percent of the students responding indicated that they would choose to enroll in small classes. In addition, twenty-eight percent indicated that their decision would depend on a factor other than class size. Students favoring large classes accounted for no more than 6 percent of the total responses. Students responding to the Commission's survey indicated that small classes, stronger academic and career advising programs and increased contact with faculty were important aspects of their undergraduate education experience. Because these factors can positively affect a student's satisfaction with the educational experience, improvements designed to strengthen advising services and increase faculty contact can promote student persistence.

Average class size levels in the undergraduate core curriculum are considerably higher than the 22 to 1 student-faculty ratio endorsed in the State University System Master Plan. According to the Board of Regents the majority of the $34.25 million in undergraduate enhancement funds which has been appropriated by the Legislature has been used for the reduction of class size in English, mathematics and humanities (including foreign languages). The average class size in these areas is generally lower than those reported in social sciences and natural sciences. Eighty-three percent of mathematics sections and 88 percent of the social science sections offered during the one year period of the Commission's analysis within the SUS contained more than 22 students. Further, seventy percent of all course sections within the undergraduate core curriculum offered in the SUS were above the 22 student benchmark used for this analysis. Also noted were the number of sections enrolling 100 students or more in in the undergraduate core curriculum and the maximum size of some of those sections. In mathematics there are 81 sections containing more than 99 students with an average class size of 227. The average class sizes in humanities for the 62 sections containing more than 99 students was 220. In social sciences and natural sciences the number of sections with enrollments over 99 was 227 and 216 respectively. The average class size for these large classes was 170 in social sciences and 183 for natural sciences. In addition, some considerably large classes of several hundred students exist within the SUS. The largest class in mathematics contained 488 students. In humanities, 1135 students were enrolled in a theatre course. Social sciences contained a class of 318 students. And in natural sciences, 996 students were enrolled in an biology class for non-majors.

Due to the financial limitations within the state and the projected shortages of faculty in some disciplines, a reduction in class size throughout the undergraduate core curriculum to the specific level of 22 students per class is not feasible. Class size levels in general education are consistently above the 22 to 1 student-faculty ratio used by the Board of Regents. The State of Florida is facing a number of challenges in the next ten years which will impact the ability of colleges and universities to maintain class sizes

at their current level. The projected number of students enrolling in Florida's postsecondary education institutions over the next ten years is expected to increase by approximately 37 percent. As postsecondary institutions struggle to accommodate these students, funding for faculty positions above the number necessary to maintain exisiting standards, given the current tax base, will be difficult to obtain.

In addition, due to retirement in the next ten years, the State University System will also face increased competition nationally and internationally for a limited pool of faculty members. A preliminary study of faculty supply and demand in Florida conducted by the Commission indicates that the disciplines of education, letters, life sciences, physical sciences and social sciences will experience the greatest shortages (See the Commission's issue paper, **Faculty Supply and Demand in Florida** for a more thorough discussion of this topic.) Both the state economic and national personnel constraints will adversely impact the ability of the State University System to reduce class size.

Providing more sections of the courses which comprise the undergraduate core curriculum may be more important to students than reducing class size. A frequent complaint of students concerns the lack of availability of required general education courses. Students are faced with the problem of enrolling in a limited number of class offerings to move forward in their academic program. The effort to keep class sizes low within the undergraduate core curriculum may unintentionaly block student progress by limiting the total number of student spaces available in some subject areas. Reductions in class size should not be achieved at the expense of student access. Currently, a faculty members assignment is made up of classroom instruction and a number of equivalent activities such as research and service. Under the 1988-91 Collective Bargaining Agreement, the Board of Regents, acting through its representatives, has the authority to adjust the mix and balance of those activities which make up a faculty members annual assignment. The current examination by the Board of Regents of the components which make up a faculty member's annual assignment should be helpful in the search for ways to offer more sections to meet the increasing student demand.

Recommendations

The impact of the undergraduate enhancement funds appropriated by the Legislature is difficult to assess. The difficulty arises from the lack of reliable baseline data on class size levels and a substantial growth in enrollment. According to the staff of the Board of Regents, during the period of the appropriations, the State University System was funded for an 8 percent increase in lower division enrollment. In terms of actual students entering the system, a 23.4 percent increase in lower division enrollment actually occurred. As a result, the nine state universities have been working to realize two incompatible goals. The undergraduate enhancement funds comprised a small percentage of the total budget for the State University System during any given year. Because universities have not recieved adequate funding for the enrollment increases, there has not been sufficient money to both accomodate the increased growth and to achieve substantial reductions in the student-faculty ratio. As a result, some enhancement funds may have been used to offer new sections to accomodate enrollment growth leaving less money

to hire the additional faculty needed to reduce the student-faculty ratio. Institutions cannot be overloaded with new students and continue to hold class size levels low without additional funding. While the Board of Regents should continue to be concerned about decreasing the student-faculty ratio, without either some adjustment in faculty workload or additional funding for faculty positions, increases in average class size are likely as enrollment continues to grow.

Recommendation:

1. **Institutional efforts to reduce class sizes should be maintained in: a) disciplines such as English composition, foreign language and science laboratory sessions, in which direct faculty interaction and individual instruction are even more essential to the learning process, and b) classes in which teaching effectiveness is adversely affected because of extremely large enrollments.**. The Board of Regents should work with the Legislature to establish realistic funding and performance goals for these efforts.

Advising

Nationwide studies by both the Carnegie Commission and the American College Testing Program have criticized the quality of academic advising in the nations college and universities. Academic advising is primarily a decentralized process spread throughout colleges and universities with little coordination and training provided to advisors. The Commission's survey of student opinion revealed that 46 percent of the students were either satisfied or very satisfied with the advising services received. Given the large percentage of freshmen participating in the survey these results are not surprising since freshmen tend to receive considerable attention in the advising process. Juniors and seniors exhibited greater dissatisfaction with the advising services than freshmen and sophomores. In addition, thirty-four percent of the students responding to this item were neither satisfied nor dissatisfied with the advising services they had experienced. In terms of the career advising services offered to students, eighty-nine percent of the university students responding to the survey indicated that they had not received any career counseling services at their institution. A number of students offering comments on the Commission's survey expressed the desire for expanded hours or availability of advising services at branch campuses or centers. Some institutions have sought to meet this need by extending the hours advising services are available to include occasional nights and weekends. Others have established satellite advising offices at branch campus locations in order to better serve students.

Recommendation:

2. **Each university should review the academic and career advising systems that may be in place; if none exist, the institution should develop a policy statement regarding the goals for academic and career advising and the methods for achieving those goals.** Student participation rates, campus surveys, and

comparisons with the services offered at similar institutions should prove useful in such efforts. To demonstrate their commitment to high quality advising for undergraduates, each university should review the needs of their academic and career advising programs and should place a high priority on support for addressing those needs.

Academic and career advising services within the State University System have become fragmented to such a degree that the process of assisting students in making a choice of career or major and then planning an academic program to achieve graduation are often viewed and experienced by students as two separate and isolated tasks. In most cases, academic advising services are located within the academic affairs area while career advising services are offered through the student affairs division. Each service area generally operates independently with its own administrative staff and budget. Students enter the university and receive academic advising services for the program of their choice without considering the career options available to them. Students unhappy with their initial choice of program and career often change majors which usually requires the completion of additional coursework. As a result, the students' time to complete a degree and the cost of that degree increase. Increased integration of the academic and career advising services would allow students an opportunity to weigh their choice of a major or career more carefully. If students are presented with information on the types of jobs open to specific majors and the entry level requirements for those jobs as well as information concerning the average salary offered to entry level candidates then they would be in a better position to make informed curriculum choices and reduce the additional costs and time which often accompany a change in mid-program.

Recommendation:

3. **Each university should attempt to strengthen the linkages among academic and career advising systems and personnel so that a more cooperative, integrated process for advising students will be created.** This process will require that the top university administrators who supervise these programs address the issue of integrating the services (not necessarily the programs themselves) that the academic and career programs offer. In turn, the program directors and their staffs should develop and implement joint academic and career counseling ventures.

Traditionally, the advising of students in the selection of courses and degree programs has been primarily the domain of the faculty. However, the diverse needs of students and the increasingly wide range of advice required by students has given rise to changes in the ways this service has been provided. Academic advising has become a complex and multi-dimensional process which has brought about the development of professional advisors lodged in special centers devoted to assisting students in the selection of courses appropriate for their program and career goals. Professional advisors often possess special counseling skills useful in working with students who are experiencing difficulty in making decisions regarding their program of study. In addition, professional advisors are more knowledgeable about the specific information needed to effectively advise students. For economic and philosophical

reasons faculty members must continue to advise students in their choice of courses and career. However, because of the requirements for effectively advising lower division and some special categories of students, professional advisors fulfill an important and critical role in the advising process. The requirements of the College Level Academic Skills Test, the courses which can be used to meet Gordon Rule, the minimum required amount of general education courses, the transfer equivalency of various courses, the various deadlines for paperwork and the differences in the individual degree programs offered by the institution represents a tremendous amount of ever-changing information that students need to know. Many faculty do not place a high priority on advising students. Meeting the requirements for tenure and promotion often means that faculty members must pursue their own special research interests and they lack the resources and interest necessary to keep abreast of this vast amount of information necessary for effective advising.

Recommendation:

4. **The use of professional advisors in the advising of lower division students and those in high risk categories such as undecided majors, those who have been blocked from entering a degree program by limited access requirements, alternative admits, students on academic probation, at risk minority students and athletes should be expanded and further evaluated.** Undecided students, in most instances, and those in high risk categories should be encouraged to complete a written career/academic plan. The plan should specify the steps necessary for the student to achieve educational and career goals.

Student Academic Support System

The Student Academic Support System represents a significant advance in the ability of the state university system to provide high quality advising services to its students. Currently, all nine of the state universities have SASS operating at various levels of performance. They are progressing toward including all of their academic programs such that they will be available on-line in the next year. Susequent components of the SASS will link advisment with actual course registration. By meeting with an advisor and using SASS the student will be able to avoid some of the problems which often result from random registration. (See the Commission's 1989 study on **Registration in Public Community Colleges and Universities** for a complete discussion of this issue.)

Although SASS is operating at all nine institutions in the State University System, some concerns exist. During the course of the interviews with campus representatives, several indicated that they were experiencing problems in gaining the cooperation and acceptance of the system from some departments or colleges. The value of SASS lies in its ability to deliver accurate information to the advisors and students who need it. This ability will be seriously compromised if those responsible for coordinating the operation of the SASS on the campus do not receive the necessary curriculum information from the departments and colleges within the university for input into the system. In addition, as changes take place, regular updates will be necessary

or the information provided to students will be inaccurate. The process of inputting the curricular information for the degree programs at the university, updating that information and providing training and support to the university community requires considerable coordination and communication among all levels of the institution. Consequently, SASS coordinators and others charged with the operation of the system must have the support and resources necessary to perform their responsibilities. However, interviews with campus representatives indicated that many felt SASS was a low priority item for their institution. Several indicated that their ability to gain the cooperation from some areas of the university was limited. Without the cooperation of the faculty, departments and colleges at each institution in regularly updating the Student Academic Support System, the information that SASS provides will be unreliable and therefore useless to the students in helping to make academic plans.

The Commission's survey data indicates that few students are aware of the SASS and still fewer have actually used it. Only 12 percent of the university students surveyed indicated that they were aware of the SASS. Of that number, forty-six percent (18 students) reported that they had actually used the system. While the apparent level of student awareness and use is low, the system is still in its early stages of implementation on each campus. Some campuses have tried enlisting the aid of the student government or student newspaper in making students more aware of the SASS with mixed results. Methods for the delivery of the reports which have been used with mixed results involve sending the reports to the student's academic department, mailing the report to the student's home address, distributing the reports at registration or requiring in some way that the student pick up the report.

Universities have a responsibility to articulate the goals for implementing SASS with students. A coordinated plan developed by each institution would assist the marketing and implementation of SASS. The plan could include provisions for the training of faculty, administrators and others who will use the system, methods for making students aware of the system and the procedures that will be used to deliver the reports to students. One option for increasing the awareness among students of the system involves demonstrating the system to readily available groups. Setting up a SASS terminal in areas where students are normally concentrated, such as a student union or residence hall, with a trained advisor who can generate and interpret degree audits for students might help increase student awareness. This series of demonstrations could be moved to other locations around campus in order to gain exsposure to the greatest number of students possible. Regardless of the approach used, each university should set goals and objectives that specify benchmarks for student usage of the SASS system.

All of those interviewed expressed the concern that SASS must not replace the advisor. The Student Academic Support System was created as a support tool for those individuals responsible for advising students. While those interviewed indicated an understanding of the role of SASS in the advising process, the real possibility exists that students could view the SASS degree audit as a substitute for an advisor. The Commission's survey data indicates that while most students in their freshmen year receive some academic advising, the percentage declines with each successive class with the lowest percentage of advised students in the senior year. The majority of those

students not receiving academic advice indicated that they felt they did not need this service. By providing students with accurate academic information, the SASS may unwittingly further convince many that they do not need to meet with their advisor. Whether this occurs or not, the SASS degree audit will still enable students to make better academic decisions. (However, university advising programs should insure that students review the report with an advisor before making decisions about their coursework.)

Recommendation:

5. **The Board of Regents should reinforce its commitment to the coordination, implementation and operation of the Student Academic Support System (SASS) and the delivery of academic and career advising services.** The goals and procedures to be used for implementing SASS with students should be clearly articulated at each institution. Universities, especially those where SASS operations are decentralized, should strengthen the control and coordination of the system so that the information found in SASS degree audits continues to be accurate. In addition to technical issues regarding the implementation of SASS at the campus level, increased attention should be devoted to its integration with existing procedures for advising students.

Undergraduate Enhancement Funding--Future Directions

In a departure from previous appropriations to ehance undergrduate education through such general strategies as the reduction of class size, the 1989 Legislature allocated $2.8 million for two separate components designed to address this area. The first component includes $1.7 million for a competitive grant program for undergraduate education enhancement. Specifically, the Legislature required that each state university submit to the Board of Regents a proposal for an undergraduate enhancement grant. Each proposal was reviewed by a committee for funding based on it's potential to enhance undergraduate education. In addition, each proposal was to specifically address how the outcomes of its undergraduate enhancement efforts will be evaluated. The second component involves a specific dollar amount of $1.1 million provided for faculty awards of $2,000 to $7,500 each for outstanding teaching and advising at the undergraduate level. Awards funding 11 proposals from eight of the nine state universities were approved by the Board of Regents for a total of $1.7 million. The proposals which were funded primarily involve programs to strengthen the quality of undergraduate teaching and academic and career advising.

Class size is only one possible indicator of quality in undergraduate education, and is by no means the best measure of how well Florida's univeristies are educating undergraduate students. Many other types of measures might be used to gauge the state univeristy system's progress toward quality. Most would agree, however, that the proper focus of any effort to improve student achievement is upon outcomes. The current process used for enhancing undergraduate education in Florida asked each institution to submit proposals for funding. The focus of the appropriations this year was on undergraduate instruction and advising. In addition, those proposals funded

must provide a measure of accountability in the form of specific outcome measures. In some cases, specific outcomes were not identified prior to the award of the funds. The current procedure for appropriating enhancement funding allows each institution to develop programs for the enhancement of undergraduate education according to its educational philosophy and practices. However, the State should be provided with some measure of accountability as to the impact of the funds.

Recommendation:

6. **As a part of the competitive grant process, specific, measurable outcomes should be identified for all proposed undergraduate enhancement programs and initiatives.** Outcome measures such as the number of students served and gains in student performance or persistence are possible examples which might be used. The process of using competitive grants for awarding undergraduate enhancement funds to state universities should be continued.

The purpose of this study was to analyze the impact of the Legislative funding for undergraduate enhancement over a six year period. The relationship between class size and student achievement and attrition, the use of faculty versus professional advisors and the methods for providing academic and career advising services within the State University System were examined. Baseline information on class size levels prior to the start of the enhancement funding made it impossible to accurately determine the progress of the efforts to reduce class size levels within the State University System. Further, students who drop or withdraw from a class before the semesters end could not be reliably identified for use in the analysis. Despite these difficulties, the study provides the Legislature and the State University System Board of Regents with an assessment of several of the enhancement efforts which have received funds over the last six years. In addition, the analysis of class size levels within the State University System will serve as baseline information which can be used for comparison in future years.

APPENDIX A

Student Surveys

Institution_____
Class Prefix/Number_____
Class Hours_____

POSTSECONDARY EDUCATION PLANNING COMMISSION
STUDENT QUESTIONNAIRE
1989-90

Directions: Please read and complete each item carefully. Check [ ] only one response unless otherwise indicated. Thank you for your response to this questionnaire.

1. Gender: [ ] Female [ ] Male

2. Class status: [ ] Freshman [ ] Junior [ ] Graduate level
[ ] Sophomore [ ] Senior [ ] Other

3. Degree you are currently working toward:

[ ] AA [ ] Bachelor's [ ] Doctorate [ ] Certificate
[ ] AS [ ] Master's [ ] Other (Specify)_____

4. Your age: [ ] Below 17 [ ] 25-33 [ ] 45-64
[ ] 17-24 [ ] 34-44 [ ] Over 64

5. Your current grade point average: [ ] Below 2.00 [ ] 3.00-3.49
[ ] 2.00-2.49 [ ] 3.50-4.00
[ ] 2.50-2.99 [ ] Unknown

6. Race: [ ] White Non-Hispanic [ ] Asian American/Pacific Islander
[ ] Black Non-Hispanic [ ] American Indian/Alaskan Native
[ ] Hispanic [ ] Other (Specify)_____

7. Are you an in-state or out-of-state resident?

[ ] In-state [ ] Out-of-state/not U.S. citizen
[ ] Out-of-state/U.S. Citizen

8. For financial aid purposes, are you considered dependent on your parents?

[ ] Yes [ ] No [ ] Don't know

9. Is English your native language? [ ] Yes [ ] No

10. How many semester credit hours are you currently taking?

[ ] 1-6 [ ] 7-11 [ ] 12-15 [ ] over 15

11. (a) Are you currently employed? [ ] Yes [ ] No **If No**, move to Question 12.

(b) **If Yes**, are you working over 20 hours a week? [ ] Yes [ ] No

12. (a) Are you a transfer student?

[ ] Yes [ ] No **If No**, move to Question 13.

(b) What type of institution did you transfer from?

[ ] Florida public university [ ] Florida public community college
[ ] Florida private college or university [ ] Other (Specify)_____

13. Are you a disabled student? [ ] Yes [ ] No

Registration and Advisement

14. When did you register for your Fall 1989 classes?

[ ] Advanced registration (Spring or Summer 1989)
[ ] Regular registration (before classes began) Fall 1989
[ ] Late registration Fall 1989

15. **Please answer the following question if you are a state university student.**

(a) Are you familiar with the Student Academic Support System (SASS) which provides a computerized listing of your program of studies?

[ ] Yes [ ] No **If No**, move on to Question 17.

(b) Have you used SASS for advisement purposes?

[ ] Yes [ ] No **If No**, move on to Question 17.

(c) In your opinion, how useful is SASS for advisement purposes?

[ ] Useful [ ] Not useful [ ] Not sure

16. **Please answer the following question if you are a community college student.**

(a) Are you familiar with the Student On-Line Advisement and Articulation System (SOLAR) which provides a computerized listing of specific program prerequisites?

[ ] Yes [ ] No

(b) Have you used SOLAR for advisement purposes?

[ ] Yes [ ] No

(c) Did you use another computerized advisement system at your college?

[ ] Yes [ ] No

17. In your opinion, how useful are automated advisement systems for planning your academic programs?

[ ] Useful [ ] Not useful [ ] Not sure

18. (a) Did you meet with an advisor for course scheduling and advising prior to registration for Fall 1989 classes?

[ ] Yes [ ] No

(b) **If Yes**, did you meet with: (Check all that apply)

[ ] A faculty advisor
[ ] A student (peer) advisor
[ ] An academic (professional) advisor at an advising center
[ ] Other (Specify)_____

(c) **If No**, why didn't you receive course advisement prior to registration?

[ ] Chose not to meet with my advisor
[ ] Did not know where to go
[ ] Did not have time
[ ] Other (Specify)_____
[ ] Did not need advisement
[ ] Could not make appointment with an advisor

(d) How satisfied are you with the academic advising you have received from your institution?

[ ] Very satisfied
[ ] Dissatisfied
[ ] Satisfied
[ ] Very dissatisfied
[ ] Neither satisfied or dissatisfied

19. (a) Have you received career counseling from your present institution?

[ ] Yes [ ] No

(b) **If Yes**, did you meet with: (Check all that apply)

[ ] A faculty member
[ ] A professional career counselor
[ ] A trained student peer counselor
[ ] Other (Specify)_____

(c) How satisfied are you with the career counseling you received from your institution?

[ ] Very satisfied
[ ] Dissatisfied
[ ] Satisfied
[ ] Very dissatisfied
[ ] Neither satisfied or dissatisfied

20. What suggestions do you have for improvements in either academic or career advising at your institution?

Academic Advising:_____

_____

Career Advising:_____

_____

21. (a) Did you participate in the Drop and Add process during Fall 1989?

[ ] Yes [ ] No **If No**, please move to Question 22.

(b) If you dropped a class in Fall 1989, please mark the **major** reason you had for dropping the class.

[ ] Class conflicted with work schedule
[ ] Class not held at convenient time
[ ] Did not meet prerequisite for course
[ ] Changed choice of courses
[ ] Changed program of study
[ ] Professor was too hard
[ ] Professor was too easy
[ ] Other (Specify)_____

(c) Did you end up with fewer classes than you wanted as the result of the drop and add process?

[ ] Yes [ ] No **If No**, move on to Question 22.

(d) **If Yes**, how many classes were you <u>not</u> able to replace with **any** other course offerings for Fall 1989.

[ ] Zero [ ] One [ ] Two [ ] Three [ ] More than three

22. (a) After you had selected the courses you wanted to take, how much time did you spend on going through the registration process?

[ ] Less than one hour
[ ] 1 - 2 hours
[ ] 2 - 3 hours
[ ] 3 - 8 hours
[ ] More than 8 hours

(b) How did you register?

[ ] Phone
[ ] In person by on-line terminal
[ ] Mail
[ ] Other (Specify)_____

23. Indicate your level of satisfaction with the registration process at your institution.

[ ] Very satisfied
[ ] Satisfied
[ ] Neither satisfied or dissatisfied
[ ] Dissatisfied
[ ] Very dissatisfied

<u>Class Size</u>

24. Have you ever been in a college class larger than 100? [ ] Yes [ ] No

25. Have you ever been in a college class smaller than 30? [ ] Yes [ ] No

26. If you answered **No** to either of the above, move on to Item 27. If you answered **Yes** to both of the above, complete the next set of items using the following scale.

1 - Much greater in small classes
2 - Greater in small classes
3 - No difference in the small or large classes
4 - Greater in large classes
5 - Much greater in large classes

	1	2	3	4	5
a. Overall quality of the classes	[ ]	[ ]	[ ]	[ ]	[ ]
b. Quality of instruction	[ ]	[ ]	[ ]	[ ]	[ ]
c. Personal relationship with instructor	[ ]	[ ]	[ ]	[ ]	[ ]
d. Chance to make a contribution in class	[ ]	[ ]	[ ]	[ ]	[ ]
e. Chance to ask a question in class	[ ]	[ ]	[ ]	[ ]	[ ]
f. Ability to see or hear the instructor	[ ]	[ ]	[ ]	[ ]	[ ]
g. Amount of material learned	[ ]	[ ]	[ ]	[ ]	[ ]
h. Personal satisfaction with the class	[ ]	[ ]	[ ]	[ ]	[ ]
i. Personal concentration on the subject matter/lecture	[ ]	[ ]	[ ]	[ ]	[ ]
j. Use of teaching assistants as the primary instructor	[ ]	[ ]	[ ]	[ ]	[ ]
k. Amount of work assigned	[ ]	[ ]	[ ]	[ ]	[ ]
l. Chance to receive a high grade	[ ]	[ ]	[ ]	[ ]	[ ]

27. In large classes that utilize small discussion groups in addition to the regular large class section, the discussion groups have: (Check all that apply)

[ ] Added to my understanding of the class curriculum
[ ] Helped me make a better grade
[ ] Did not help me in any way
[ ] I had no classes of this kind

28. If given a choice, I would:

[ ] Enroll in small classes
[ ] Enroll in large classes
[ ] Enroll in large classes with discussion groups
[ ] Depends on the subject matter or course
[ ] Enroll in either - does not matter

Financial Aid

29. When did you first receive information about financial aid for college?

[ ] In high school from high school counselors
[ ] In high school from college/university personnel
[ ] During college orientation activities before classes started
[ ] I never received information about financial aid for college

30. (a) Have you personally used the state-wide computerized information system CHOICES? [ ] Yes [ ] No

(b) **If Yes**, how helpful was CHOICES?

[ ] Helpful [ ] Not helpful [ ] Not sure

(c) Have you personally used any other computerized system for financial aid information?

[ ] Yes, (Specify)_____
[ ] No

(d) **If Yes**, how helpful was this system?

[ ] Helpful [ ] Not helpful [ ] Not sure

31. Have you ever applied for financial aid at your institution?

[ ] Yes [ ] No

If you answered <u>No</u> to the above question, you have completed this survey. If you answered <u>Yes</u>, please continue.

32. Have you tried to contact the Financial Aid Office at this institution for information? [ ] Yes [ ] No

33. How have you found phone communication with the Financial Aid Office?

[ ] I have not tried to call the Financial Aid Office
[ ] It is easy to get through to Financial Aid by phone
[ ] It takes several tries to get through to the Financial Aid Office
[ ] It is almost impossible to contact Financial Aid by phone

34. (a) How long did you usually have to wait before you were helped in the Financial Aid Office?

[ ] Less than 10 minutes
[ ] 10 to 15 minutes
[ ] Over 15 minutes

(b) If you had to wait over 15 minutes, why did you usually have to wait that long? (Check all that apply)

[ ] Lots of students before me [ ] Computer problems
[ ] No one was around to help me
[ ] Other (Specify)_____

35. A counselor is an employee in the Financial Aid Office who provides accurate, timely, and in-depth information about <u>your</u> financial aid situation and explains your options. Have you had an individual or personal meeting with a counselor from the financial aid office at your institution?

[ ] Yes [ ] No [ ] I never visited the office

36. If you received a student financial aid loan, did the Financial Aid Office provide you with counseling on repayment for this loan?

[ ] Yes [ ] No [ ] Didn't get a loan

37. Indicate your level of satisfaction with the following services at the Financial Aid Office using the scale below:

1 - Very satisfied
2 - Somewhat satisfied
3 - Somewhat dissatisfied
4 - Very dissatisfied
5 - Does not apply

	1	2	3	4	5
a. Printed Materials	[ ]	[ ]	[ ]	[ ]	[ ]
b. Timely notification of the award	[ ]	[ ]	[ ]	[ ]	[ ]
c. Timely receipt of the award	[ ]	[ ]	[ ]	[ ]	[ ]
d. Adequacy of financial aid counseling	[ ]	[ ]	[ ]	[ ]	[ ]
e. Hours the Office is open	[ ]	[ ]	[ ]	[ ]	[ ]
f. Location of the Office	[ ]	[ ]	[ ]	[ ]	[ ]
g. Information on my right to contest an award decision	[ ]	[ ]	[ ]	[ ]	[ ]

38. Does the Financial Aid Office distribute information about financial aid opportunities available through academic departments?

[ ] Yes [ ] No [ ] Don't Know

39. In general, how would you rate the staff at the Financial Aid Office? (Check one column for each word in the first column)

	Always	Sometimes	Never
Courteous	[ ]	[ ]	[ ]
Helpful	[ ]	[ ]	[ ]
Knowledgeable	[ ]	[ ]	[ ]

40. The above questions focused on your opinions about how financial aid is administered at this institution. Feel free to add comments on the administration of financial aid programs. Use the space below.

_____

_____

_____

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.

FLORIDA STATE UNIVERSITY EXPERIMENTAL STUDY

POSTSECONDARY EDUCATION PLANNING COMMISSION
STUDENT QUESTIONNAIRE
1989-90

Directions: Please read and complete each item carefully. Check [ ] only one response unless otherwise indicated. Thank you for your response to this questionnaire.

1. Gender: [ ] Female [ ] Male

2. Class status: [ ] Freshman [ ] Junior [ ] Graduate level
[ ] Sophomore [ ] Senior [ ] Other

3. Degree you are currently working toward:

[ ] AA [ ] Bachelor's [ ] Doctorate [ ] Certificate
[ ] AS [ ] Master's [ ] Other (Specify)_____

4. Your age: [ ] Below 17 [ ] 25-33 [ ] 45-64
[ ] 17-24 [ ] 34-44 [ ] Over 64

5. Your current grade point average: [ ] Below 2.00 [ ] 3.00-3.49
[ ] 2.00-2.49 [ ] 3.50-4.00
[ ] 2.50-2.99 [ ] Unknown

6. Race: [ ] White Non-Hispanic [ ] Asian American/Pacific Islander
[ ] Black Non-Hispanic [ ] American Indian/Alaskan Native
[ ] Hispanic [ ] Other (Specify)_____

7. Are you an in-state or out-of-state resident?

[ ] In-state [ ] Out-of-state/not U.S. citizen
[ ] Out-of-state/U.S. Citizen

8. Is English your native language? [ ] Yes [ ] No

9. How many semester credit hours are you currently taking?

[ ] 1-6 [ ] 7-11 [ ] 12-15 [ ] over 15

10. (a) Are you a transfer student?

[ ] Yes [ ] No (If No, move to Question 13.)

(b) If yes, what type of institution did you transfer from?

[ ] Florida public university [ ] Florida public community college
[ ] Florida private college or university [ ] Other (Specify)_____

11. What percentage of your college classes have been larger than 100 students?

[ ] Less than 10 percent
[ ] 10 to 25 percent
[ ] 25 to 50 percent
[ ] 50 to 75 percent
[ ] More than 75 percent

12. What percentage of your college classes have been smaller than 30 students?

[ ] Less than 10 percent
[ ] 10 to 25 percent
[ ] 25 to 50 percent
[ ] 50 to 75 percent
[ ] More than 75 percent

13. On average, please indicate the number of students usually enrolled in your college classes. _____

14. Based on your past experience (in this institution) please complete the next set to items using the following scale.

1 - Much greater in small classes
2 - Greater in small classes
3 - No difference in the small or large classes
4 - Greater in large classes
5 - Much greater in large classes

	1	2	3	4	5
a. Overall quality of the classes	[ ]	[ ]	[ ]	[ ]	[ ]
b. Quality of instruction	[ ]	[ ]	[ ]	[ ]	[ ]
c. Personal relationship with instructor	[ ]	[ ]	[ ]	[ ]	[ ]
d. Chance to make a contribution in class	[ ]	[ ]	[ ]	[ ]	[ ]
e. Chance to ask a question in class	[ ]	[ ]	[ ]	[ ]	[ ]
f. Ability to see or hear the instructor	[ ]	[ ]	[ ]	[ ]	[ ]
g. Amount of material learned	[ ]	[ ]	[ ]	[ ]	[ ]
h. Personal satisfaction with the class	[ ]	[ ]	[ ]	[ ]	[ ]
i. Personal concentration on the subject matter/lecture	[ ]	[ ]	[ ]	[ ]	[ ]
j. Use of teaching assistants as the primary instructor	[ ]	[ ]	[ ]	[ ]	[ ]
k. Amount of work assigned	[ ]	[ ]	[ ]	[ ]	[ ]
l. Chance to receive a high grade	[ ]	[ ]	[ ]	[ ]	[ ]

15. In large classes that utilize small discussion groups in addition to the regular large class section, the discussion groups have: (Check all that apply)

[ ] Added to my understanding of the class curriculum
[ ] Helped me make a better grade
[ ] Did not help me in any way
[ ] I had no classes of this kind

16. If given a choice, I would:

[ ] Enroll in small classes
[ ] Enroll in large classes
[ ] Enroll in large classes with discussion groups
[ ] Depends on the subject matter or course
[ ] Enroll in either - does not matter

APPENDIX B

List of People Interviewed

Those interviewed by telephone included:

- Dr. Edward Healy, Associate Vice President for Academic Affairs at U.N.F.
- Dr. Gary Howard, Associate Vice President for Undergraduate Studies and Enrollment at U.W.F.
- Dr. Keith Legg, Acting Associate Vice President for Academic Affairs at U.F.
- Ms. Olga Magnusen, Director of Career Planning at F.I.U.
- Mr. Maurice Mayberry, Director of Placement at U.F.
- Dr. Gary Reichard, Dean of Undergraduate Studies at F.A.U.
- Dr. William Scheurerle, Dean of Undergraduate Studies at U.S.F.
- Mr. Russell Tiberri, Director of SASS at U.C.F.
- Dr. E. Wanton, Dean of the School for General Studies at F.A.M.U.

Personal interviews included:

- Dr. William Caldwell, Consultant, Academic Programs for the State University System
- Ms. Connie Graunke, Education Policy Director, State Board of Community Colleges
- Dr. Bruce Janasiewicz, Director of the Undergraduate Advising Center
- Mr. Joseph McGuire, Associate Director, Information Resource Management for the Board of Regents
- Mr. Jay Pfeiffer, Florida Education and Training Placement Information Program
- Dr. Robert Reardon, Director of the Curricular/Career Information Service, Florida State University.
- Mr. Glenn Thomas, Bureau Chief, Bureau for Career Development

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